

November-December 2002 Volume 3 Issue 3

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Director's Message

No Caltrans employee has been killed while serving the public in the past 18 months. That's cause for rejoicing.

Incidents are down, too. The California Department of Transportation had 4898 collisions in its work zones during 2001—down from 5339 in 2000—the lowest figure in 10 years.

Caltrans has a number of initiatives in place to protect its workers—better equipment, better training, an enhanced safety program—and one other that I believe is having a highly positive effect on the world in which we work—the "Slow for the Cone Zone" campaign.

This month, the department will launch a \$5 million statewide advertising program that will continue our effort to make drivers more aware that they need to keep a sharp eye out for workers and slow down in work zones.

The advertising—on billboards, television and radio—will stop during the winter months when construction activity slackens, then start up again in the spring when more of our workers return to the highways.

The "Cone Zone" grows out of the "Give 'em a Brake" campaign that was so successful for many years. "Give 'em a Brake" helped motorists to understand the everyday risks that workers face alongside the road. But drivers often failed to understand that they were also at risk when traveling through highway improvement zones.



Jeff Morales

In fact, vehicle drivers and passengers represent almost nine of every 10 deaths in work zones. Research has shown that once drivers understand that risk, they are much more likely to drive carefully when approaching our work areas.

For that reason, the department is committed to a two-pronged educational approach. While our own employees may be aware of the dangers of working along the roadway, we need to remind drivers that they, too, have a personal stake in avoiding accidents. And the "Cone Zone" campaign is making headway.

The public's awareness of the "Cone Zone" advertising is very high, according to Lou Jacobs, a 25-year veteran of advertising awareness testing who has been tracking the ad campaign since 1999. Jacobs found that more than half of Bay Area drivers and nearly three-quarters of Sacramento-area drivers recalled the advertising without prompting.

More than a third of the Bay Area drivers tested and nearly half of those in Sacramento said the ads had a positive influence on the way they drove through work zones.

Unfortunately, the number of driver fatalities in work zones rose statewide by one last year: 48 deaths compared to 47 from a year earlier. However, the latest figure is part of a general downward trend and, except for 2000, it is the lowest since 1992.

Still, we cannot afford to be complacent. Since 1924, Caltrans has lost 158 workers who were working to build, operate and maintain our 24 000 km-plus State Highway System.

Our goal remains constant: to reduce the number of all accidents in work zones, both for employees and the public. One death is too many.

Keep up the good work. Remember: "Slow for the Cone Zone."

Let Morales

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Mandela Pkwy

Pride IN WEST OAKLAND

In the aftermath of the catastrophic collapse of the Cypress Freeway in Oakland after the 1989 Loma Prieta Earthquake, a lively debate erupted over how to transform one of the most blighted freeway corridors in the state into a source of pride for the city.

Now, community leaders are praising Caltrans District 4 Landscape Architects for their design of a fully landscaped, tree-lined grand parkway and arboretum on the roughly blockwide path of what used to be Interstate 880.

The California Transportation Commission had de-certified the original right of way in 1991 after the freeway was rerouted to the west to meet community desires that

it be relocated away from the residential area and, also, to provide better access to the Port of Oakland and the San Francisco-Oakland Bay Bridge. The original Cypress Freeway corridor, disdained by the community since the structure was built and largely ignored following the post-earthquake cleanup efforts, began its grand metamorphosis in September.

The Mandela Parkway project, whose development was guided by a City of Oakland master plan, is expected to take two years to complete and to cost \$11.5 million. It will extend about two kilometers between 8th and 32nd

Streets and contain a meandering, tree-covered path for pedestrians and cyclists in a median that is as wide as 33 m. When finished, its wide islands and adjacent streets will be planted with about 600 trees comprised of 68 species.

Flowering shrubs, grasses, ground cover and lawns will run alongside the 3.6 m-wide pathway. Decorative lighting and benches will be installed. New Class 2 bike lanes will serve as a Bay Trail connector. Median crossings at 13th, 17th and 20th streets will be closed to cars to promote pedestrian and bicycle

use and enhance the effect of a continuous arboretum.

"I believe we have exceeded everyone's expectations," says Lyle Oehler, Project Manager and Chief of Landscape Architecture for Caltrans District 4. "People were genuinely excited each time we exhibited the renderings of what we were proposing."

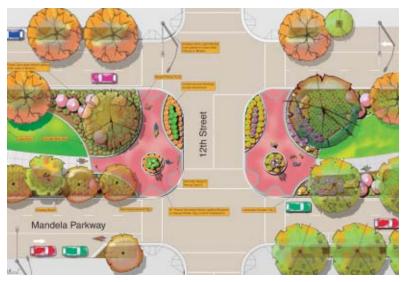
"Caltrans is creating an elegant, basic infrastructure on which the West Oakland community will be able to place additional features, such as sculpture, that reflect the character of the neighborhood," Oehler says.



The Mandela Parkway promises to bring new life to West Oakland's streetscape.







One of those additions will be an approximate half-hectare memorial, between 13th and 14th Streets, dedicated to those whose lives were taken in the Loma Prieta Earthquake. Caltrans will

transfer \$620 000 to the City of Oakland for design and construction of the memorial, for which planning has already begun.

In order for Caltrans to make good on its commitment to the city to improve the Mandela Parkway corridor, the department needed legislation, SB-1645, which was carried by Senator Don Perata and made it possible to finance the project from the State Highway Operations and Protection Program.

"This project represents context sensitivity at its best," Oehler says. "The community was involved from the beginning; Senior Landscape Architect Bryan Walker made sure that their aspirations were taken into account."

"We had already established a strong working relationship with the community from earlier Cypress reconstruction projects," Oehler says, "and we wanted to continue that relationship." The Caltrans staff made connections

continued

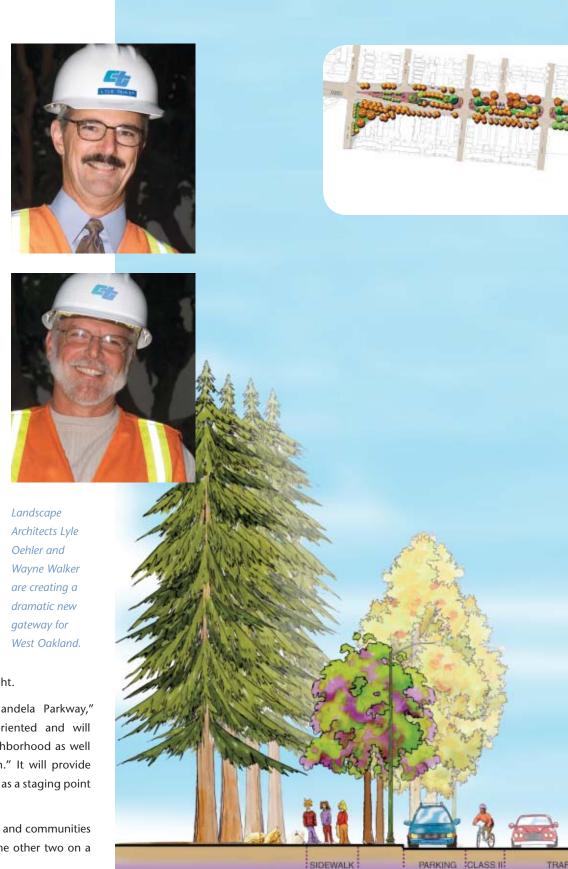
with an advisory committee that consisted of local artist Bruce Beasley, real estate broker Stephanie Parrot and community advocate Ellen Wyrick-Parkinson.

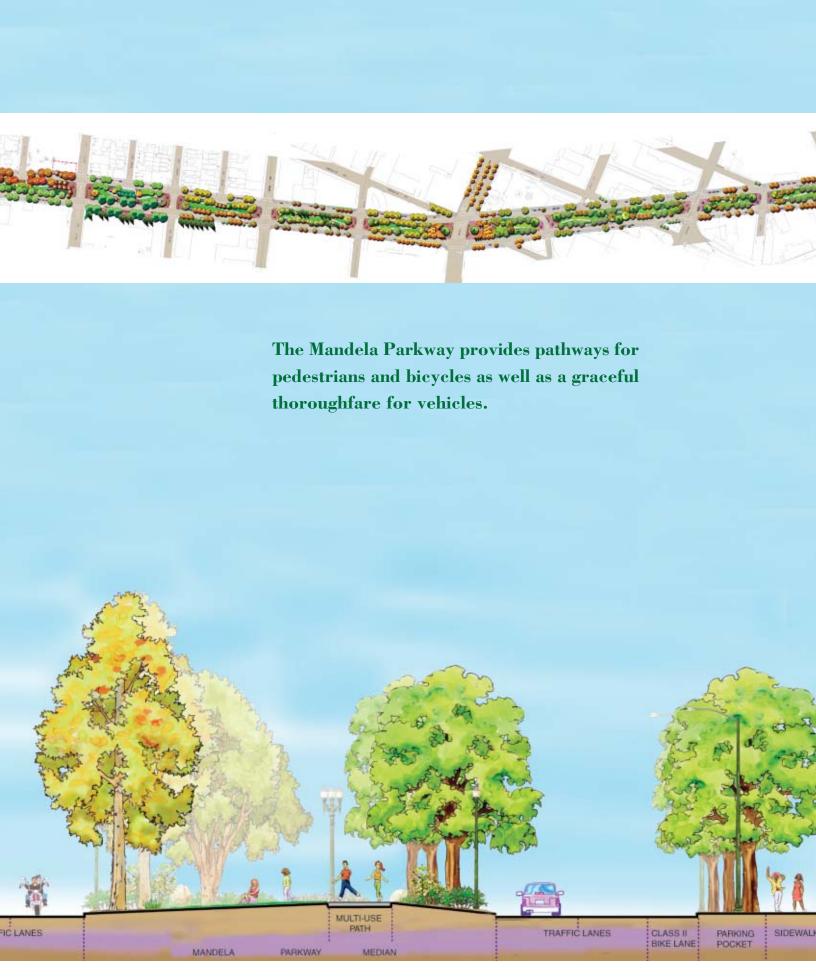
"They were quite knowledgeable about the area and the plants of the region," Oehler says. "So the first thing we did was take a tree tour to get agreement on what should be planted." It was an easy matter to decide to plant oaks in Oakland; the project will plant 39 species of oaks originating from various parts of the world.

In the course of their meetings with the committee and with community members, Oehler and Walker determined that the Mandela corridor provided three important gateways to welcome visitors to Oakland. The main one, at Mandela Parkway and West Grand Avenue, will greet those arriving from the San Francisco-Oakland Bay Bridge with a formal plaza, punctuated with twin multi-trunk live oaks in raised planters. A low semicircular retaining wall and colorful lower plantings will further enhance the oaks, and taller, columnar-shaped trees will serve as a backdrop. Uplighting at all three gateways will show off the beauty of the trees at night.

"The gateway at 8th Street and Mandela Parkway," Walker says, "is more pedestrian-oriented and will provide visual ties to the nearby neighborhood as well as to the West Oakland BART Station." It will provide opportunities for gatherings and serve as a staging point for community activities.

The third gateway, from the businesses and communities to the north, combines attributes of the other two on a smaller scale.





The parkway forms a corridor between the burgeoning business district of Emeryville to the north and Jack London Square to the south. And it offers an opportunity to install a redevelopment catalyst next to a West Oakland neighborhood that was beginning to awaken after years of decline.

Indeed, as you drive down the streets that border the parkway, you can see fresh coats of paint on the Victorians that front upon it, freshened streetscapes, new apartment complexes and the conversion of warehouses

into live/work spaces.

"The character of the parkway landscape changes as you proceed south from 32nd street,"

Oehler says. "On the north, the informal arboretum responds to adjacent industrial land uses.

Toward the southern end, plantings

become more formal, to be compatible with the Victorian homes of West Oakland's historic district. "Plantings were selected from those commonly used during the Victorian period," Walker says.

The path winds between the trees and other shrubbery throughout the corridor. At each sidewalk plaza, it aligns directly with large circular planters to slow cyclists down and discourage them from bursting out into automobile traffic.

Considerable amounts of lawn will adorn the parkway, since the City of Oakland's restrictive pesticide policies make it more economical to mow lawns than to apply chemicals to deal with weeds.

Throughout the parkway, the design takes into account the need for pedestrian safety in a neighborhood that has seen its share of turmoil over the years. The trees provide an overstory that leaves plenty of light; shrubs and hardscape are low so as not to provide screening



District 4 Acting **Director Randell** Iwasaki puts a shovel to the new Mandela Parkway. He is joined by Mayor Jerry Brown, Councilmember Nancy Nadel, State Senator Don Perata and community representatives Stephanie Parrot, Ellen Wyrick-Parkinson and Bruce Beasley.

The Mandela Parkway project, whose development was guided by a City of Oakland master plan, is expected to take two years to complete and to cost \$11.5 million.

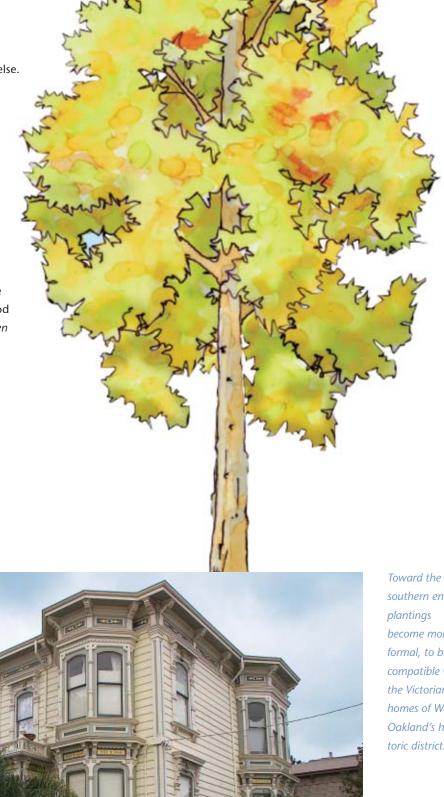




for anyone interested in harming anyone else. Lighting is also abundant.

The parkway still has a long way to go. Soil contaminated with oil, gas and lead must be removed, and sections of concrete must be taken up before drainage systems, curbs, landscaping and streetlights can be installed. Nevertheless, Oehler and Walker are enthusiastic about the future.

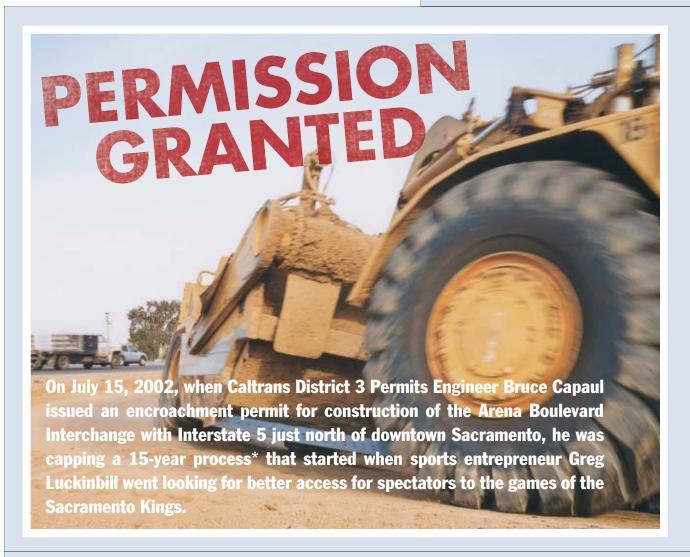
Asked to characterize the parkway's function in his own words, Oehler says, "I think this project will have the effect of putting the Cypress Freeway, with its divisive neighborhood effects, behind us for good." —Gene Berthelsen







ENCROACHMENT PERMITS



The permit, for construction valued at about \$13 million, was just one of the 17 000 encroachment permits that Caltrans issues every year. About a third are for utility construction and another third are for highway improvements, valued together at about a half billion dollars. Another third includes various activities in the right of way, including special events and Adopt-A-Highway cleanup. During the last fiscal year, Caltrans collected about \$5 million in permit fees and \$10 million in compensation for fiber optic cable installations on freeways.

"We issue encroachment permits to protect the public's investment in the highway system, ensure that motorists and those trying to do the work are safe, and make sure that the work does not interfere with our mission of mobility and accessibility," says Paul Cavanaugh, headquarters coordinator for encroachments.

Anyone who proposes to do anything within, under or over the state highway right of way must obtain an encroachment permit. "This can range from a single-family driveway connection to a multi-million dollar construction project like Arena Boulevard," says Cavanaugh. "Utility work, excavations, advertisements, trimming vegetation, surveys, mail boxes, tire chain installation, special events and commercial filming—they all need a permit. Even Adopt-A-Highway participants."

"In the case of the Arena Boulevard job," says Bruce Capaul, "the developers of the Arco Arena and City of Sacramento staff first went to our planning and Special-Funded Projects people. There are basic questions An encroachment permit that enabled construction of the Arena Boulevard Interchange on Interstate 5 near Sacramento will speed Sacramento Kings fans to games.

This encroachment job enabled construction of a \$1.1 million overcrossing widening and other improvements in Petaluma.

about whether or not the highway can accommodate the travel generated by the facility and whether or not the geometrics will fit. The developer was told that he would have to produce a Project Study Report and was given information about environmental and other requirements. He went through design, and only after all the plans, specifications and estimates were found to be

In that case, the encroachment permit was basically a formality after a lot of preparation in other units inside and outside of Caltrans.

appropriate was the encroachment permit issued."

But for most of those 17 000 permits, a proposed encroachment is handled entirely within the permits offices. "Those involve an expenditure, in most cases, of less than a million dollars," says Sean Nozzari, District 4 Permits Engineer. He points out a \$1.1 million project recently performed on State Route 101 at McDowell and Washington Boulevards in Petaluma.

That project was to widen the overcrossing, add bike lanes, install box culverts, add lighting and other miscellaneous work.

"In a situation like this, a permit takes about three to four months. We bring in other reviewers to make sure the geometric design is correct and that if there are design exceptions, they have been approved. We also are concerned with structural details and whether there is a traffic plan that protects motorists and maintains mobility. We check to see that all environmental requirements have been met and that there is a maintenance agreement. We have to look into hydraulics, geotechnical, signal operations and so on. Stormwater Protection Plans lately have become extremely important.

"We are the Renaissance people of Caltrans," he says.



Even so, Nozzari is sensitive to the possibility that his operation could cast a poor impression of Caltrans generally. "We are a very large agency," he says. "There is a kind of built-in assumption out there that we will be an unwieldy bureaucracy when they come calling."

And therein lies a danger. Nozzari is aware that those proposing to get into the Caltrans right of way do not always appreciate the potential for disruption of busy highways or that what seems to them a simple driveway may in fact be creating a serious safety hazard. "We try to get with them as early as we can," he says. "We let them know what will work and what will not. If there are difficulties, we try to help them with their designs and with the process. Consistent with context sensitivity, we try to find ways to say 'yes.' Still, people do not always appreciate that we are not simply being obstructionist—that we are protecting the public's interest, and often the applicant's as well."

About a third of all encroachment permits are issued for some activity in the right of way. "Someone who wants to stage a walk-a-thon on a state highway needs to appreciate the need for adequate notification to the public that the highway may not be available that day because of their event. They also need to understand that they need adequate traffic control and signage to ensure public safety."

All of this became abundantly clear a few years ago when District 4 issued a permit to close the San Francisco-Oakland Bay Bridge for a mammoth charity walk-a-thon that involved about 10 000 people. "We did our best to continued

work with them to provide adequate public notice and to ensure motorist safety," says Nozzari. "Still, the first year, some drivers became very angry when they found out that they would have to go 50 or 60 km out of their way to get around the bay."

"So the second two years, to minimize inconvenience, we worked out a way to allow two-way travel on the lower deck of the bridge while the walkers were on the top one. We held our breaths, and after it was over, concluded

Cavanaugh. "If someone who is a part of a walk-a-thon on a state highway were injured, we would be the 'deep pocket.' People don't always see that."

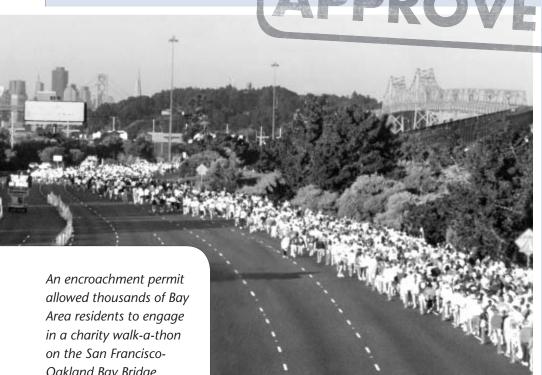
The Caltrans legal division constantly stresses the need to provide documentation of decisions to allow activities in the highway right of way in order to prepare legal defenses. The Permits function is working to assure that as-built plans from permit projects are integrated with Caltrans as-builts generally.

> Events also include filming on state highways. Film crews are notoriously undisciplined, both when they approach public agencies and when they get on the highway. They are also subject to the vicissitudes of weather and the press of events they cannot control. But the film and entertainment industry is one of the most important in California and an economic powerhouse. Thus, Caltrans, the California Film Commission and the California Highway Patrol currently have an agreement to process film permits within 24 hours.

In general, Caltrans meets this requirement, with specialists in District 7 coordinating the issuance of the permits.

Nozzari sees his assignment as the zenith of context sensitivity. "We are

here to be responsive to communities while maintaining the integrity of the system and our commitment to mobility. We try to do both while responding as quickly as we can. We may have 60 or 90 days to process a permit application, but our objective is to issue it just as quickly as we get it out." —Gene Berthelsen



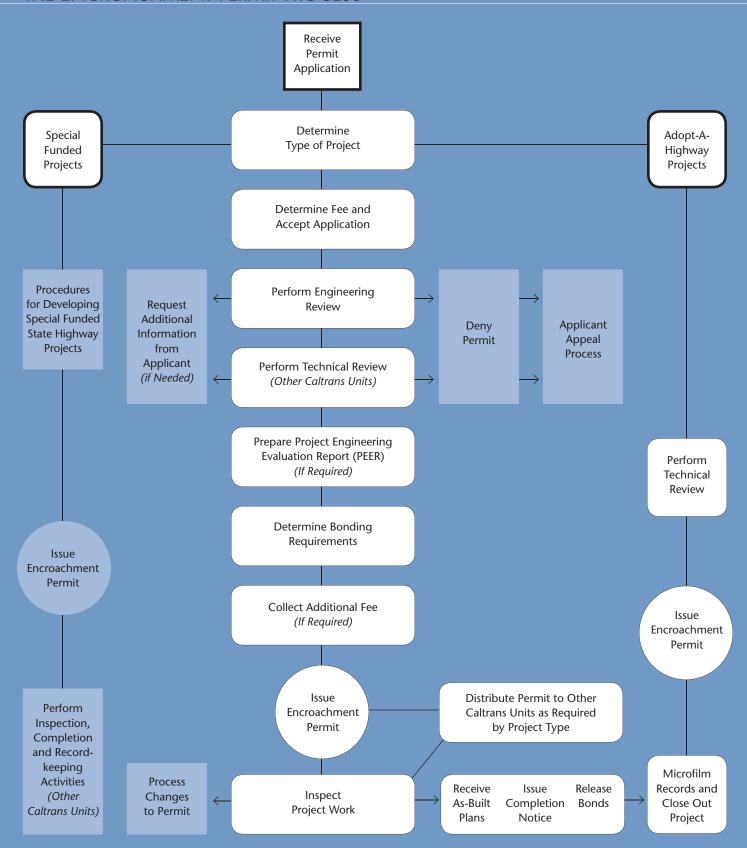
Oakland Bay Bridge.

that the potential for increased risk of head-on collisions had been so great that we simply couldn't allow the walk to go on in the future."

As with so many other Caltrans activities, the issue of tort liability raises its ugly head in the permits arena. "Permit engineers have to be cognizant of the possibility that an encroachment could end in a lawsuit," says Paul



THE ENCROACHMENT PERMIT PROCESS



GOVERNOR'S TRAFFIC CONGESTION RELIEF PROGRAM

MAKING THINGS MORE— PLEASANT FOR PLACENTIA

As you stroll the sidewalks of the historic downtown section of Placentia in northern Orange County, it is possible to imagine the jubilation when, in 1910, local citizen A.S. Bradford persuaded the Santa Fe Railroad to reroute its tracks through town, an event that, at that time, was thought to be

a straight shot

to prosperity.

Ninety-two years later, the Alameda Corridor East, the freight and passenger rail corridor extending east from

Redondo and Hobart Junctions in Los Angeles County to Colton Junction in San Bernardino and beyond, carries 50 to 70 trains daily past Placentia's 11 intersecting streets. And that volume is expected to double between now and 2020 as freight activity at the Long Beach and Los Angeles ports' global gateway increases.

The boon that Mr. Bradford delivered to Placentia in 1910 now means that 20 000–30 000 vehicles a day end up sitting at the

railway signal gates as trains operated by the Burlington Northern, Amtrak and Metrolink roar by.

By 2020, the increase in rail freight travel along the Alameda Corridor East is expected to generate increasing safety concerns and traffic congestion. By 2025, this is expected to result in more than 300 000 hours of delay, an annual delay cost of more than \$6 million.

For Placentia and the other cities along the line, help is on the way. Governor Davis' Traffic Congestion Relief Program legislation in 2000 provided \$273 million to address the problems and to identify and prioritize improvements



Placentia's
historic
old town,
undergoing
a broad
renaissance, will
be enhanced
as a result
of two new
rail crossings
financed by
the Governor's
Traffic
Congestion
Relief Program.

throughout the corridor. Eventually, improvements at 130 crossings and 22 grade crossings along the 450 km corridor are expected at a cost of about \$3.73 billion.

The first of these, grade crossings at Melrose and Placentia Avenues, recently approved by the California Transportation Commission, are expected to be under construction within the next few months. The two are being financed by \$28 million from the governor's program and an additional \$6.4 million from the Interregional Transportation Improvement Program, Burlington-Northern Railroad and the City of Placentia.

"These are extremely important projects to the City of Placentia," says Chris Becker, Public Works Director for the city. "They will facilitate goods movement, alleviate congestion and advance our efforts to improve the historic downtown area of our city."

"The state's investment has infused new life into Placentia's historic old town area near the tracks," Becker says. "The old town area is undergoing a significant rehabilitation through private developer and local funding. Our goal is to use transit-oriented design to rehabilitate existing housing and to construct several hun-

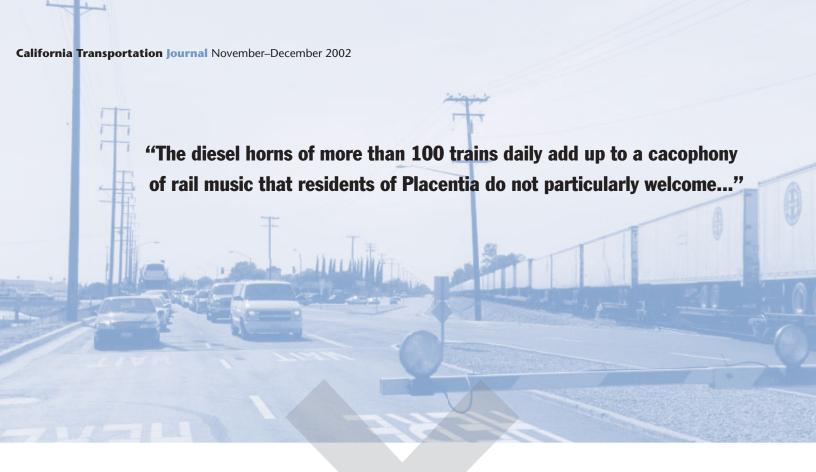
dred new, affordable housing units in mixed use, higher-density buildings clustered along the rail corridor. A site for a commuter bus or rail station is being reserved as part of the plan. None of this activity would have occurred without funding from this program."

In June 2000, Governor Davis unveiled the Traffic Congestion Relief Program, giving Caltrans the task of delivering a series of highway, rail and transit projects to ease traffic congestion in some of the state's most heavily traveled corridors.

The Placentia projects are typical of those in the governor's program targeted at bottlenecks. The backups at the rail crossings not only make things difficult for drivers, but savvy commuters have a tendency to race the train down the city's side streets, causing disruption and traffic safety concerns in the neighborhoods of this city of 48 000 residents.

Construction of the undercrossings is scheduled to start this year and to be completed in 2005. Other financing from the governor's program funnels \$273 million to 14 priority locations along the Alameda Corridor East in Los Angeles, Orange, Riverside and San Bernardino counties. All of the projects will eventually yield safety

continued



and traffic congestion relief benefits and speed rail shipments between the ports and points east.

The employees and citizens of the city of

Placentia are keenly interested in these additional investments, which will seed an eventual expenditure of about \$4 billion along the entire Alameda Corridor East; the diesel horns of more than 100 trains daily add up to a cacophony of rail music that they do not particularly welcome. They're anticipating that a part of those expenditures will go to place the railroad in a trench similar to the one recently completed in the Alameda corridor between the ports and downtown Los Angeles.

In the interim, while the larger grade separation project is moving through the environmental and funding phases, the City of Placentia, in cooperation with the Orange County Transportation Authority, the operating railroads and the California Public Utilities Commission,

has developed a plan to install new safety measures at eight at-grade street/ rail crossings to improve safety.

The seven kilometer project, called the Rail Corridor Safety Demonstration Project, will involve use of state-of-the-art quad-gates, traffic pre-signals, raised medians and shoulder curbing to prevent drivers from trying to go around the rail crossing gates. An application to implement this project is pending with the California Public Utilities Commission.

Recently, the Orange County Transportation Authority granted \$3.4 million to Placentia, supplementing the \$500 000 local match. The city will also ask the Federal Railroad Administration to grant the corridor "quiet zone" status so that locomotive whistles will not routinely be sounded at the crossings.

To date, the commission has approved more than \$3.6 billion of the \$5.3 billion contained in the TCRP.

Two new overcrossings financed by the Governor's Traffic Congestion Relief Program will relieve hundreds of vehicles daily from waiting for trains to pass by.

CURRENTLY, MORE THAN TWO DOZEN PROJECTS ARE IN THE PIPELINE FOR GROUNDBREAKINGS OVER THE FALL AND WINTER.

COMPLETED PROJECTS:

Coaster Commuter Rail

Acquire new locomotive in San Diego County

West Hollywood

Repair on Santa Monica Boulevard in Los Angeles County

PROJECTS UNDER CONSTRUCTION OR IN PROCUREMENT:

Alameda County

Capital Rail Corridor, Harder Road Overcrossing

Alameda and Contra Costa Counties

AC Transit, fuel cell buses and fueling facility

Alameda and Santa Clara Counties

Track and signal improvements for Capitol Corridor intercity rail line.

Contra Costa County

State Route 4, widen and add HOV lanes between Railroad Avenue and Loveridge Road in Pittsburgh

El Dorado County

Folsom Light Rail

Fresno County

San Joaquin intercity rail service, construct second main track from Calwa to Bowles

Fresno, Kings and Tulare Counties

Cross Valley Rail, upgrade freight rail track from Visalia to Huron

Imperial County

Route 98, widen in the City of Calexico

Los Angeles County

Olympic Blvd/Lemon Street intersection, remodel, install new signals

Los Angeles County

Victory Boulevard corridor, automated traffic signal coordination

Los Angeles County

MTA, Los Angeles to Pasadena Blue Line

Los Angeles County

Construct new siding for Metrolink service in Sun Valley

Marin County

Route 101, HOV lane in San Rafael

Orange County

Melrose Avenue and Placentia Road, construct grade separations in the City of Placentia

Orange County

Route 22, construct soundwalls

Sacramento County

Sacramento Emergency Clean Air/Transportation Program, clean diesels

Sacramento County

Sacramento Regional Transit, low emission buses

Sacramento County

Route 50/Sunrise Boulevard Interchange

San Bernardino County

Metrolink service, construct track and signal improvements

San Diego County

North San Diego County Transit District, acquire compressed natural gas buses and transit vans

San Diego County

Route 5/805 interchange, reconstruct and widen

San Francisco Bay Area

Regional Express Bus Program, procure suburban and over-theroad express buses

San Francisco County

Balboa Park BART Station, Phase I expansion

San Francisco County

SF Muni Ocean Avenue Light Rail

San Francisco County

SF Muni Third Street rail extension

San Francisco/San Mateo/ Santa Clara Counties

Caltrain Peninsula Corridor, acquire rolling stock

San Francisco and Marin

Golden Gate Bridge, seismic retrofit

San Joaquin Valley Counties

Emergency Clean Air District, clean diesel program

Santa Barbara County

Santa Barbara Metropolitan Transit District, acquire and install automated vehicle location tracking system

Santa Clara County

Route 101, widen freeway, improve Rte 101/85 Interchange

Santa Cruz County

Santa Cruz Metropolitan Transit District, low-emission buses

Santa Barbara County

State Street Smart Corridor Advanced Traffic Corridor System

Santa Clara County

Route 85/Route 87 Interchange

Santa Cruz County

Santa Cruz Metropolitan Transit District, low-emission express buses



To drive down any freeway in the Los Angeles Basin is to experience feelings of disorientation as you cruise from what can only be called jurisdiction to jurisdiction, rather than city to city. Corona, Arlington, Riverside, Grand Terrace, Colton, San Bernardino—all of these at one time were distinct towns, with orange groves and row crops between them. When you'd come to a town, there would be a sign with the altitude and the population on it; you'd know you'd gone from someplace to someplace.

oday, those cities have grown together, elbow to elbow, and are hidden behind soundwalls or freeway embankments. And the California Department of Transportation, with its mission to make the world safe for travelers, has carefully tailored the roadside environment so that drivers know exactly what to expect—and in doing so, has made those cities look just alike from the highway side.

But context-sensitive solutions is a design process that says it's time to look at the differing contexts of cities and to incorporate into road-building design elements that restore a sense of place to California's cities and towns.

The cities of the Inland Empire have, over the past decade, experienced phenomenal growth as Southern California's coastal areas have filled with people. And the traffic generated by that growth has overwhelmed the highway system. Today, District 8, headquartered in San Bernardino, is in the midst of a vigorous building program to provide the capacity to cope with the new traffic. Between now and 2007, the district will complete 10 projects worth \$480 million on Routes 60, 71, 91 and 215.

"When we came to appreciate the fact that we were going to make major changes to so many highways," says Ernie Figueroa, District 8 Senior Landscape Architect, "we felt it was important to get together with the cities and to try to lend context to them in such a way that gave their sense of place back to them."

The result is the 215/91 Corridor Master Plan, whose theme is "The Ties That Bind Us." It provides a framework for improvements to the highway system that embraces local character while it emphasizes an enduring landscape and structural identity for the entire corridor and minimizes adverse effects on natural resources.

The plan, coordinated by an interdisciplinary Caltrans team in cooperation with the local communities, includes a right-of-way-fence-to-right-of-way-fence examination of guardrail, fencing, fixtures, signs, structures and embankments. "As in many other areas, we had upgraded the highway bit by bit over time, so these elements were from several eras and did not present a uniform design," Figueroa says. "When we are finished here, we will have that."

"The Caltrans team really took the initiative," Figueroa says. He gives special credit to Landscape Associates Miriam Bishop, Susan Bullard and Kathy Jochi, who did the detail work on the plan. Representatives from Project

continued



Distinctive mission architecture in the city of Riverside is reflected on retaining walls being constructed on State Route 91.

Management, Traffic, Electrical, Design, Structures Bridge Architecture and Aesthetics Branch, Maintenance and a number of other disciplines also joined the team.

Among the first things the team members did, starting in 1998, was to contact the local agencies to inform them that Caltrans wanted their involvement. "They were delighted," Figueroa says. "The process really took off from there. Our team had done its homework, looking into the history and culture of the area. A community advisory committee came together quickly, and the team presented them with several alternative treatments—landscaping, architectural design, added features, etc.—for each of the areas, and they chose what worked best for them."

The multi-layered plan—a work in progress while construction goes forward—consists of a site analysis and project concept. It describes structural design and land-scape architectural elements as an integrated whole for the entire area—yet it also considers the contexts of the individual cities, especially community gateways, those nodal points that tell you that you have gone from one city to the next. These gateway areas will receive highly detailed planting designs suited to viewing by slower traffic and by pedestrians.

"The master plan proposes vegetation of a scale and mass to minimize long-term maintenance and maximize aesthetics," Figueroa says. "It uses low-volume irrigation, solar irrigation controllers and reclaimed water as much as possible. The majority of the master plan's plant palette will be drought tolerant and provide shelter to such rare animal species as the Least Bell's vireo and the California gnatcatcher."

The plant palette contains plants that are adapted to the region and are consistent with the planting plans of local agencies. That hardy and attractive native of the Mediterranean and mainstay in Caltrans landscapes—oleander—is scheduled for removal.

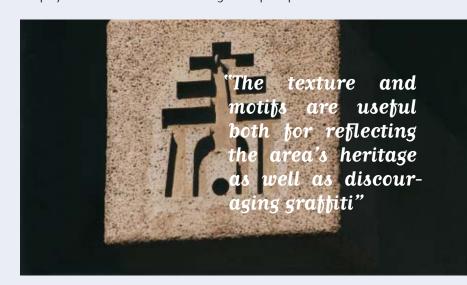
Riverside, Corona and Moreno Valley have enough palm trees to adorn a Bob Hope-Bing Crosby-Dorothy Lamour road movie. Caltrans promises to preserve as many as possible during construction, and where they must be removed, to stockpile and replant them in appropriate settings.

An additional feature of the plan includes enhancements and links to bikeways and pedestrian walkways.

In some areas, notably near downtown Riverside, widening within the right of way meant that it would be impossible to replace the lush landscaping as it had previously existed. In those locations, Caltrans has agreed to provide textured and terraced retaining walls with plantings to soften their appearance.

"Hardscape," using river rock cobble for texture to echo that used widely in the three cities, establishes a consistent border along the freeway shoulder and in gore areas through several segments of the corridor.

Today, Alex Angha, structures construction rep, and Amr Abuelhassan, resident engineer, are overseeing the first of the projects to be constructed according to the principles



of the plan, to widen 16 km of Routes 91 and 215 and reconstruct several interchanges and overcrossings. They are working at the Van Buren Avenue overcrossing of Route 91 in Riverside; the highway, in this location, lies in a six meter deep trench. Widening of the highway without taking additional right of way from the residential lots that crowd it means that a series of retaining walls has had to be installed.

"We did not want people to have the feeling that they were driving down a giant slot car track," says Ernie Figueroa. Thus, these walls are adorned with textures, motifs and color that reflect the area's mission The rain cross, a ubiquitous symbol sprinkled on Riverside's architecture, is carried into the freeway architecture.



architecture, particularly that of the graceful Mission Inn in Riverside. Other motifs reflect the rain cross symbol, a feature of early area churches that has been replicated in architectual features throughout the Riverside area.

At the jobsite, Brutoco Engineering and Construction of Fontana, the prime contractor on the job, builds panels that will be tested and accepted by Angha and Abuelhassan, incorporated into the concrete forms, and then used to produce the stylized missions and rain crosses. "Brutoco has been great to work with on this project," says Angha. "I believe they enjoy putting aesthetics into these projects."

"The texture and motifs are useful both for reflecting the area's heritage as well as discouraging graffiti," says Figueroa.

The comprehensive plan also recommends the use of terraces, landscaping and graphic images with textures in order to break up the monolithic appearance of retaining walls and sound walls. "We also anticipate using plants with seasonal colors as requested by several of the communities," Figueroa says.

"This well-traveled transportation facility, when it is finished, should provide a sense of regional place," Figueroa says.

"Based on a foundation of local culture and history, it will integrate structural and landscape design elements to create an enduring, meaningful corridor legacy."

—Gene Berthelsen

Caltrans will save and replant as many as possible of the area's prized palm trees that are scheduled for removal.







ertainly there are more wildly expensive, topdown convertibles along this highway than on any comparable stretch of road anywhere.

The thoroughfare that bears this tide of opulence along its leisurely course is California State Route 1, yclept the Pacific Coast Highway, but known hereabouts as the "PCH." Its northern anchor is Seal Beach at the Los Angeles county line and, on the south, its merge with Interstate 5 at San Juan Capistrano.

It's a road, in spite of the sumptuousness of the metal that rides daily upon it, and it has to be maintained just like any other road; that's the task of Gary Gibson and his crew down at the San Juan Capistrano maintenance station off Doheney Park road. "Believe it or not, we do have a rainy season down here," he says. "We get flooding, slides, trees down and stopped-up drains just like any other highway."

Like most maintenance supervisors, Gibson knows exactly where the trouble spots are. This Pacific paradise occasions problems that other maintenance districts tend not to have: homeless folks camping out in the highway landscaping and an acute concern over runoff from the highway that could foul the Gold Coast's sparkling beaches. Thus, a large part of the job of Gibson's crew is to sweep the PCH and to clean the fabric filters out of the drains along the way.

Today, on September 11th, as the *Journal* tours the coast, Gibson and his crew are on standby alert, watching for anything that could bode an attack by terrorists; although, in this golden setting, it's hard to imagine anyone wanting to do it damage.

The PCH peels out to the north into Dana Point from its merge with Interstate 5 in San Juan Capistrano. It's just a short hop across San Juan Creek and there you are, at continued

State Route 1
—the Pacific
Coast Highway
—conveys
Southern
California's
affluent
residents along
the Gold Coast,
the golden
state's sunny
playland.



The standard Gold Coast home: stucco, glass, tile, palm trees and, for some reason, a fireplace.

Legislation has just passed to transfer ownership of this stretch of the PCH to the City of Dana Point so they can civilize it with islands, trees, flowers and other accouterments of context sensitivity. Not a bad idea, except if you really wanted this highway to fit its surroundings, you'd probably want to gold plate it.

Up on the hills are stacked so many spectacular homes looking out toward Asia that they give these ridges a horizontal definition; they don't look so much like natural geologic formations as gilded, fantastic Lego blocks stretching down to the sea.

Doheny Beach State Park, the first of the splendid beaches strung along the coast like froth on a specialty beer. A pod of joggers is in the parking lot, wheeling jiggling babies in aerospace-inspired prams. Out off the beach are the first of the hundreds of surfers you'll see along the coast.

Zonker Harris and beach movies have glamorized this pastime beyond touch with reality. Surfing mostly appears to involve laborious outbound paddling, long periods of inactivity, a short, uncontrolled ride and then a dunk into the brine.

Along here, the PCH is a busy commercial street, shielded from the magic of the Pacific by commercial establishments that retail conspicuous consumption with an oceanic flavor. At two lanes in each direction with a turning lane in the middle, it's almost the freeway that was originally planned here but which got scuttled years ago.

Out of Dana point, amid stands of coastal sage, buckwheat and prickly-pear, you pass vast tracts of upscale homes. The names say it: St. Regis, Ritz Carlton and other tony monikers meant to confer the luxe of old money. Large or gigantic, there's a uniform look to these houses with their earth-toned stucco, tiled roofs and windows staring at the sea. They're protected by glass walls so their occupants can gaze upon the marine splendor while shielded from the wind and the noise of traffic on the PCH. They're unaccountably punctuated by chimneys that surely must connect to fireplaces, but one has to ask, "What for?" when the average temperature is a balmy 75 degrees.

Up the road is Laguna Beach. Until early this fall, the football team at Laguna Beach High School referred to itself as the "Artists," but in September, students at the school voted to rename the team the "Breakers."



In spite of this, Laguna Beach prefers to think of itself as the artists' colony that it started out to be soon after Captain Hippolyte Borchard, a French pirate, put ashore in 1818 to search for fresh produce. There's a legend that the brigand buried some booty in an area they called "Lagona," now called "Treasure Island."

The Laguna Playhouse was founded in 1920 and, in 1922, the town's first Festival of the Arts, with *tableaux vivants*, was offered for an admission fee of 10 cents.

Laguna Beach really is Carmel with cars—or rather convertibles. The PCH is its main gut, but up and down these steep hillsides run informal streets with homes cozily crowded together to mount the ridge, each view surpassing that of the lower one until they reach the top, like Rocky at the Philadelphia Art Museum steps; you almost expect another course of homes to be built into the sky.

Along the PCH, amid classy boutiques, there are hardware stores, banks, movie houses and laundromats that indicate that this is a working town. Because the houses that line the PCH have been there awhile, they don't have the same cloned look of the newer subdivisions. The funky-rich look of Laguna Beach is an argument against CC&Rs.

This is a place where you want to get out of your car, even if it is a Mercedes convertible, and walk around. Today, in the September sun, a lot of people are doing just that on the capacious, sandy beach that lies down at the end of State Route 133. Nobody, today, is thinking about melanoma; in fact, they seem to be thumbing their well-tanned noses at it.

On the other side of the hills behind Laguna Beach lies the bustling Orange County of the Irvine Company, but it might as well be Katmandu, for all the pull it exerts on this benign seascape and these tawny sands. These continued

Southern
Californians are
trying hard to
preserve and
expand the
Bolsa Chica
Ecological
Preserve, some
of the last
remaining
wetlands along
the Gold Coast.

This is a place where you want to get out of your car, even if it is a Mercedes convertible, and walk around.





Sand, sun and palm trees, the Gold Coast's stuff of life.

folks frolicking on the beach don't look like tourists. One has the sense that, in their easy communion with their surroundings, this is where they hang out all the time.

Between Emerald Bay at the north end of Laguna Beach and Newport Beach, there is an amazing five kilometers of open space through which the PCH meanders gently, a demarcation between the brushy hills to your right and the cerulean Pacific on your left. Thoughtfully, somebody decided to save this one stretch from the bulldozers and the builders. This is Crystal Cove State Park, totaling about 1500 ha. On the ocean side there are five kilometers of quiet trails along the bluffs where you can stroll among native lilac, California sage, elderberry and sunflower. Below you is the Tidepool Walk, a ground-level wooden boardwalk where you can see native plants, animals and birds—maybe a California towhee, a mourning dove, a turkey vulture or a white-tailed kite.

At the southern end of Newport Beach, the entire hillside from the highway to the top of the coastal mountains has been denuded and reshaped to create pads for million-dollar homes. This is Newport Coast, what the Irvine Company likes to call the crown jewel of the Newport Coastal Communities; they say you can get a home from as low as \$295 000 to \$7.9 million. Bet it wouldn't take long to walk through that \$295 000 one.

Newport Beach just reeks of the Southern California Coast. Its harbor is home base for an armada of pleasure, fishing and tour boats that are so big they couldn't be parked anywhere else, all in blinding white, brass and blue awnings. One imagines advertising and entertainment moguls making deals that will inject some new cliché into the language or launch an acting career that will consume the popular imagination for decades.





Newport Harbor, haven for an armada of pleasure craft on which the rich and famous may while away an afternoon of affluence.

These yacht owners shop at what may be the ritziest shopping center in the world: Fashion Island, up the hill. A bureaucrat could only drive by and gape at these names: Neiman Marcus, Bloomingdales, Four Seasons and Christophe. Still, one supposes that they try their pants on one leg at a time, just like we do.

Newport Beach, like Laguna Beach, has been here awhile, and so the homes hereabouts are have a satisfying diversity to them even though there's a breathy undertone of money everywhere. Up there somewhere is John Wayne's old house, but what was good enough for the Duke isn't for the new owners. They're tearing it down and replacing it with one almost twice as big.

Newport Beach wasn't named after the Newport back east. It got the name because at one time it was a "new" port serving Orange County, which, at that time, was mostly the Irvine Ranch.

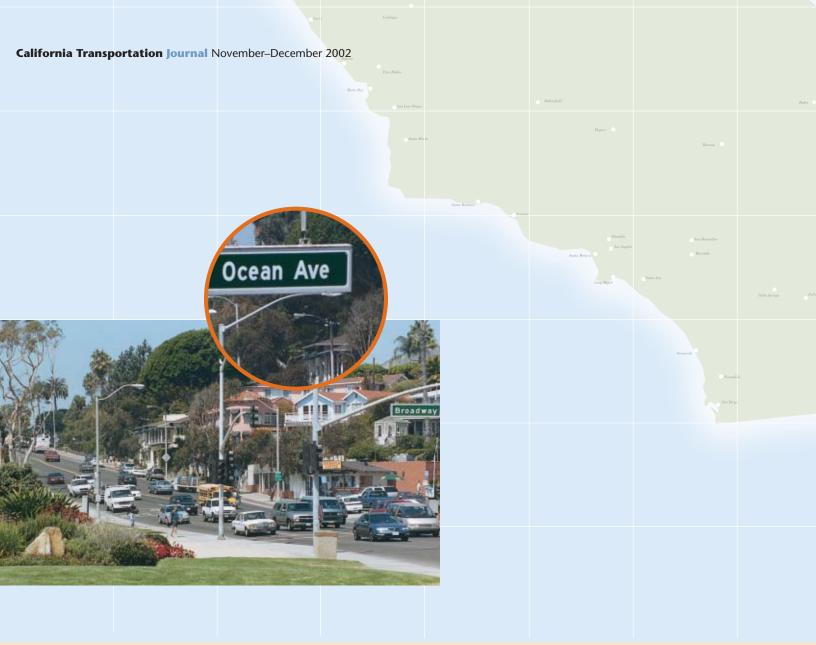
Back in the mid-1800s, the State of California sold parts of Harbor, Balboa and Lido Islands for \$1 an acre as "swamp and overflow land," according to the Newport Beach Historical Society. Today, the median price of homes in Newport Beach has topped \$600 000.

As it passes through Newport Beach, the PCH makes a curtsy to its surroundings, unlike in other beach cities. There's a landscaped median and bricked crosswalks.

Up the road is Huntington Beach. Huntington Beach started out as an attempt to emulate Atlantic City on the East Coast and was even named "Pacific City" for awhile. Alas, there wasn't much around in the way of customers, so the promoters sold to a group of Los Angeles businessmen. One of them was Henry E. Huntington, who was expanding his Pacific Electric Railway and, on July 4, 1904, the first red cars of the Pacific Electric rolled into the city, now called Huntington Beach.

Hundreds
of luxurious
pleasure boats
lie at anchor in
Newport Beach's
harbor.

continued



About 1914, an Americana Encyclopedia salesman bought some land along here from the Huntington Beach Company that was thought to be worthless, intending to cut it into small lots and give it away as a gimmick with the purchase of their book sets. Imagine the excitement when oil was discovered on these properties, known as the "encyclopedia lots," in 1920.

Subsequent strikes right up through the 1950s kept Huntington Beach an oil town whose bobbing pumps remained its symbol for many years and were frequently used as background for movies, including "Giant." Most of them are gone or masked by plantings, but the oil still flows.

These days, the old rigs are being cleared or fenced off so that the land can be used for substantial homes, and Huntington Beach is starting to look tonier. Indeed, an enormous Hyatt Regency is under construction that seems to stretch a kilometer along the PCH. That, along with rising homes and condos in the stucco-glass-fireplace chimney mode seem to signal that Huntington Beach is about to take its place alongside the other expensive beach cities of Orange County.

By the mid 1930s, the City of Huntington Beach had acquired its beachfront, creating about 14 km of nearly unbroken beach, a ready-made backdrop for surfing, and in the 1950s its savvy recreation and parks director lured the first United States surfing championships to the city. Its fame as a surfer's paradise followed. Surfing contests are still held each September. Hard to imagine this as a spectator sport, though.

Just north of Huntington Beach and maybe an appropriate capper to a trip up the Gold Coast, the Pacific Coast Highway bisects the Bolsa Chica Ecological Reserve and the Bolsa Chica State Beach. This preserve is a 120 ha coastal

The Pacific
Coast Highway
takes Southern
Californians for
a ride along the
good life.





sanctuary for wildlife and migratory birds. There's a wooden bridge crossing over the tidal inlet and a 2.4 km loop trail that lets you stand right amidst nesting birds and darting fish. Nature in action.

Southern California, which once counted more than 20 000 ha of wetland areas, is down to a quarter of that because of development. This sanctuary is therefore precious, and it's a nice place to stretch your legs. On two sand islands, California least terns and snowy plovers nestle down and 163 pairs of endangered Belding's savannah sparrows flutter about. Rare, light-footed clapper rails have recently been spotted. On any day, you might see great blue herons, snowy egrets, white and brown pelicans, avocets and black-necked stilts.

Farther up the road, there are still more beaches—Sunset Beach and Seal Beach, a couple of funky beach towns that make no pretense to the haute couture down south. There's a business called Sunset Private Investigations; just imagine Humphrey Bogart in there, waiting for a blonde with hair falling over her eye to show up with a two hundred dollar retainer.

As the PCH enters Seal Beach it's as straight as an engineer could make it, a city street that crosses the San Gabriel River to enter Los Angeles without any particular drama. This is an unapologetic beach city, where those with a hankering for salt air and fun in the sun come to play. It is a supreme case of form following function, a healthy economic stew, but attractive only to the eyes of a funseeker or an economist.

Do the folks in these utilitarian beach cities have as much fun as those in the opulent surroundings down south? Probably about the same, but with fewer worries about keeping up with the Joneses. —Gene Berthelsen



ne in every 10 vehicles on California's roads is a truck; many of these are loaded with materials that are classified as hazardous—everything from innocuous grocery trucks to ubiquitous gasoline and diesel haulers to those carrying radioactive materials. And every so often, one of those drops its load.

"Last year, Caltrans had to deal with more than 1100 spills of hazardous materials on its system," says Charleen Fain-Keslar, Caltrans' Maintenance Manager I who oversees hazardous material operations. "The cleanup cost to responsible parties was more than \$5 million."

When a load containing hazardous materials goes over, it triggers an intense set of responses from a number of agencies, including the State Emergency Management System. Caltrans is likely to get the first notice through one of its transportation management centers, and dispatches the area's Maintenance Supervisor, who

"Our responsibility is to stabilize and isolate the situation and notify needed emergency units as quickly as possible." follows a contingency plan, depending on what material has spilled. He

or she also works from an emergency response guide that identifies a zone of isolation for a safe response.

A hazmat response team, often from the nearby community's fire department or a county hazmat team, will be called. Caltrans people do not "suit up," but provide assurance that contracting firms specializing in hazardous spill stabilization and removal are doing their jobs safely and effectively.

"We control traffic and work with environmental health agencies of the county to ensure that appropriate environmental groups, such as air resources and water agencies, are notified," says Fain-Keslar. Caltrans staff also does a quick evaluation of the surrounding area—crucial if the spill is especially toxic or near schools, hospitals or residential areas.

Several local or state law enforcement or emergency response units may arrive on the scene, depending on who has been notified, but when the California Highway Patrol arrives, its officer usually becomes the incident commander.

"Our responsibility is to stabilize and isolate the situation and notify emergency units as quickly as possible," says Jim Wills, who is in charge of hazardous spill operations for the California Highway Patrol. "And the overriding goal is safety."

Spill scenes are divided into hot, warm and cold zones. The hot zone is the spill itself—the most dangerous area where only properly garbed and trained containment and cleanup personnel are allowed. The warm zone, for decontamination of personnel and equipment, provides a buffer area. The cold zone is the support zone for fire, medical, Caltrans and other support forces. Reporters, who Fain-Keslar says can be helpful in keeping the public informed of the extent of the spill and its effects on mobility, are allowed into the cold zone.

"We make sure the reporters know what the hazards are and that if they go into a contaminated area, they may have to be decontaminated. We cannot ensure their safety. But we work with them to allow their reportage to let people know of the situation and what alternative routes are available.

"Everyone works together," Fain-Keslar says. "Caltrans' greatest concern is public safety and after that, that the spill be cleaned up as quickly and safely as possible and that traffic gets moving again. We are always looking for ways to improve our response time."

It is essential that a liquid spill be contained quickly to minimize environmental impacts. Caltrans is subject to myriad laws and regulations about drainage and runoff from the highway. If materials are allowed to invade the drainage system, or worse, nearby natural streams, they can do enormous environmental damage. Environmental protection agencies have the power to take legal action and to levy fines, both on the firm responsible for the spill and on Caltrans. Thus, cleanup crews use long cylindrical tubes called "booms" to encircle materials and keep them from spreading. If hazardous materials make it into drains, they must be pumped out and carried away and the drains decontaminated. If they make it into streams, they must be remediated. If they contaminate the soil, the soil must be removed and disposed of.

When the spill has been contained, cleanup crews use a variety of chemically compatible absorbent materials:

Cleaning up after hazardous spills is part of the daily job of highway operations. Here, contract cleanup crews mop up after an incident on Interstate 680.

continued

booms, granular materials or pads. Disposal may be by burning, or, for the most toxic of materials, by hauling them to a secure dump site hundreds of kilometers away. Caltrans, under a Department of Toxic Substance Control variance, is allowed to transport up to five 200 liter drums to Caltrans maintenance yards for temporary storage.

What kinds of hazardous materials get spilled on a highway? The Federal Department of Transportation lists nine categories, including explosives, gases, flammable liquids and solids, oxidizers and organic peroxides, toxic materials and infectious substances, radioactive material, corrosive materials and miscellaneous dangerous goods—none of it fun to deal with. Fain-Keslar says that most

only a minute segment of the cleanup program. "The regulations and practices governing the movement of radiologic materials are very strict," Fain-Keslar says. "Certain radiological materials, such as transuranic waste, move in specialized containers on trucks that communicate continually with central control systems. They have videos on their dashboards and videotape their whole route. They have electronic log systems and they are watched very closely."

Radiologic material transfers in California, with its nuclear power plants, Lawrence Livermore Laboratory and various military facilities, will increase if Nevada's Yucca Mountain depository comes on line; Fain-Keslar

A major spill
can require a
full complement
of equipment
—fire crews,
ambulance, law
enforcement and
detoxification,
as well as
the cleanup
equipment itself.

DID YOU KNOW?

This symbol, vaguely reminiscent of some occult activity, is actually the universally recognized symbol for bio-hazardous material. It is one of a broad range of symbols used to denote the presence of various hazardous materials.



Caltrans cleanups involve flammable liquids such as gasoline, miscellaneous dangerous goods and corrosives such as battery acid and bio-waste (some of this is of an excretory nature from truck drivers.)

"In most cases, shipping papers with the load will tell us what it is," Fain-Keslar says. "Once we know what it is, we'll know how to treat it. If we don't know what it is, we approach it from uphill, upwind and upstream so as to minimize the threat of injury."

Radioactive materials are in a class by themselves because of a general perception among the public that they are extremely dangerous, but overall they represent has been placed on a Department of Energy Committee to plan for such movements.

Documentation looms large in the hazardous spill cleanup process. Hazmat coordinators maintain a spill diary for each spill, noting the work the contractors do and what materials, labor and equipment are used. Spill substance and Prop 65 reports are filled out and sent to the Office of Emergency Services and various entities such as the California Highway Patrol, Caltrans Dispatch and environmental protection agencies. They note what material has been spilled, a description of the location, information about the responsible company and those who have responded. The new Integrated Maintenance Management System accepts the

data quickly and easily to provide information for the billing of responsible firms.

In 2001, Caltrans paid its spill contractors about \$722 000; so far in the current fiscal year, the cost has risen to more than \$1.1 million. This number is likely to increase with invoices yet to be paid and as additional spills occur within the remaining months of the year. In some instances, a cleanup contractor may invoice the firm responsible for the spill directly and this cost is not captured at Caltrans headquarters. For example, a recent major spill in Mendocino County cost more than \$2 million to clean up, but the contractor billed these costs directly to the trucking company and its insurance carrier.



Fain-Keslar estimates the cost last year to the responsible parties at about \$5 million.

Fain-Keslar started her career 12 years ago at Caltrans as a chemist at the Translab. She moved to the Maintenance Division two years ago and supervises a small headquarters group that develops policy, writes contracts and coordinates the activities of the 18 district hazardous materials managers and 19 specialists who assist them.

District hazardous material managers provide training to supervisors and field people, coordinate individual responses and comply with regulations and perform liaison with local resource agencies. —Gene Berthelsen

HAZARD CLASSIFICATION SYSTEM

Class 1: Explosives

Division 1.1: explosives with a mass explosion hazard

Division 1.2: explosives with a projection hazard

Division 1.3: explosives with predominantly a fire hazard

Division 1.4: explosives with no significant blast hazard

Division 1.5: very insensitive explosives; blasting agents

Division 1.6: extremely insensitive detonating articles

Class 2: Gases

Division 2.1: flammable gases

Division 2.2: nonflammable, nontoxic* compressed gases

Division 2.3: gases toxic* by inhalation

Division 2.4: corrosive gases (Canada)

Class 3: Flammable and combustible liquids (U.S.)

Class 4: Flammable solids; spontaneously combustible materials and dangerous-when-wet-materials

Division 4.1: flammable solids

Division 4.2: spontaneously combustible materials

Division 4.3: dangerous when wet materials

Class 5: Oxidizers and organic peroxides

Division 5.1: oxidizers

Division 5.2: organic peroxides

Class 6: Toxic* materials and infectious substances

Division 6.1: Toxic* materials

Division 6.2: Infectious substances

Class 7: Radioactive materials

Class 8: Corrosive materials

Class 9: Miscellaneous dangerous goods

Division 9.1: miscellaneous dangerous goods (Canada)

Division 9.2: environmentally hazardous substances (Canada)

Division 9.3: dangerous wastes (Canada)

^{*} The words "poison" or "poisonous" are synonymous with the word "toxic."



(Above)
District 3 Hazardous Material
Manager Janeen
Rich directs
Caltrans
operations near
Sacramento International Airport.

(Right)
Fire, police,
medical personnel and cleanup
crews converge
on an overturned rig.



HAZARDOUS DUTY

At 3:30 pm on the first blistering day of summer out on Interstate 5 near Sacramento International Airport, a Ramos Oil Kenworth loaded with 14 000 liters of diesel and 15 000 liters of gasoline rolls to a stop in the gore point of the Elkhorn Boulevard offramp. The truck's engine is malfunctioning and the driver feels that, rather than risk a breakdown in the traveled lane, it is prudent to stop and call the company's mechanic in West Sacramento.

The driver waits in the hot sun for an hour, and then the mechanic arrives and crawls under the truck to begin the repairs. But it begins to creep forward, rolling over his legs and gathering speed. The badly hurt repairman and the driver both struggle free and watch the Kenworth gain speed down the offramp then nose over the side and come to a stop in a cornfield alongside the highway. As the truck plunges into the ditch, the trailer, containing the diesel, flips onto its top and now sits, wheels-up, on its back.

"A large percentage of the hazardous situations we deal with are petroleum spills," says Janeen Rich, District 3's hazardous material manager, who is one of the first on the scene. "There's always a danger of fire and explosion with flammable material. Also, this truck is in a ditch with the potential to contaminate water."

Maintenance Supervisor Durval Avila and Leadworker Neil Abrahamson close the ramp and put up signs. They will stay until the area is clean and it is safe to reopen the ramp to traffic.

The area is cordoned off to ensure that no one other than authorized personnel gets within several hundred meters of the truck, due to the danger associated with the hazardous material. Caltrans is soon joined by personnel from the Yolo County sheriff's department, the Yolo County Environmental Health Department, the Yolo County Fire Department, Elkhorn Fire and Rescue, two tow trucks capable of moving a capsized big rig, a rig from Ramos Oil's own environmental services division, other Caltrans staff and the California Highway Patrol, a total of perhaps three dozen onlookers.

Since we're in Yolo County, the Yolo County Fire Department takes responsibility for the safety of those responding to the situation. Their puce-colored foam truck sits, its



engine growling, ready to suppress any flammable vapors in the event of a fire. Firemen in their now-familiar, heavy, dirty-yellow protective clothing stand with nozzles ready.

The truck isn't going to move unless the fuel is off-loaded. Below us, three Ramos employees clamber onto the overturned rig, gain entry to the trailer through the bottom and begin the task of pumping the fuel about six meters up into the waiting tanker on the ramp. "We call this a "stinger operation," Rich says. "The truck is grounded with grounding rods and cables to prevent a static electricity ignition source. It must be done by a trained and qualified team."

Up on the offramp, the situation shifts quickly from one of tension and concern about a possible fire or leakage of the fuel into the watercourse in which the rig now rests, to boredom. At least a half-dozen rigs sit, engines idling —three fire trucks, the tanker that will receive the fuel and the two rigs that will fish the tanker out of the ditch. Groups of onlookers drift over to Yolo County's fire truck. They've got Gatorade. The firemen stand, talking about fishing or a recent movie. Oddly, although we're dealing with almost 30 000 liters of fuel and traffic goes roaring by on Interstate 5, the pervasive aroma is of corn, wafting up from the field below.

Pumping of the fuel begins about 7 pm. By 8:30, it's done, but it's also starting to get dark. The two rigs have figured a way to right the trailer, attaching cables and winching it slowly toward them until it does, remarkably, flop over onto its wheels,

still attached by the tow-bar to the tractor.

"A large percentage of the hazardous situations we deal with are petroleum spills."

They reposition the tow trucks, reattach the tow cables and start the task of drawing the wounded rig up onto the highway.

By 10 pm, the truck is back up on the ramp, ready to be towed to Ramos' yard. The firemen have left, as have the other emergency personnel.

At 10:15, Avila and Abrahamson reopen the ramp.

Janeen Rich's job is finished, all except for the paperwork, which consists of auditing the emergency responder invoices and entering the costs so that Caltrans can be reimbursed for the cost of the operation. "We work very hard to recoup all costs for California's taxpayers," Rich says. —Gene Berthelsen

ROUTE 88 AT SILVER LAKE

GETTING OFF THE

or 80 years, the road that is now State Route 88 in the high Sierra has crossed the top of Silver Lake Dam, a modest irrigation dam owned until recently by the Pacific Gas and Electric Company and now the property of the El Dorado Irrigation District.

Over time, as vehicles traversing Route 88 got bigger, traffic got heavier and speeds got faster, the alignment across the dam became problematic. The structural integrity of the 80-year-old dam came into question. Silver Lake became a recreation spot and campgrounds sprouted on its banks and downstream, resulting in a steady stream of foot traffic across the busy highway during summer. The pavement, at 2500 m altitude, developed nearly continuous longitudinal and transverse cracks, with isolated-to-continuous alligator cracking. In the period 1995 to 1997, 53 accidents occurred in a reach of about four kilometers on either side of the dam, an increase of 61 percent over the previous three years and double the rate for similar roadways.

In 1998, Caltrans District 10 proposed a project to correct these problems. It involved several curve corrections, pavement rehabilitation and a new crossing of the Silver Fork of the American River, just downstream from the Silver Lake Dam.

During project development, reinforcing the old dam and leaving the Route 88 alignment on it was considered; however, the condition of the dam, the amount of foot traffic across the highway and the potential accidents on the curving approaches to the dam ruled that out. Not the least of the considerations was that tinkering with



the dam would have brought several federal and state agencies into the mix in addition to the 10 that would also have to issue permits.

Thus, Caltrans proposed a new alignment that required a new bridge across the Silver Fork.

Roy E. Ladd Construction of Redding, California, selected as the contractor, started work in March of 2000 on the \$6.5 million project, of which \$2 million was for the bridge.

Route 88's new alignment made for an interesting construction project.

"The proximity of the dam and the need to keep bridge columns out of the Silver Fork necessitated construction of a very long span," says Ehab Abdelwahed, the Caltrans structures representative on the project. "But the need to keep the dam's spillway open during the construction season made falsework impossible, ruling out a cast-inplace structure."

To deal with this problem, designers at Caltrans Engineering Services called for a single column outside the floodway and the longest pre-cast girders ever placed on a California bridge. "The Bulb-T girders, at almost

The proximity of the new bridge over Silver Fork to the Silver Lake Dam dictated the use of the longest pre-stressed concrete girders ever placed on a California bridge.



40 m long, weighed more than 70 000 kg and were at least five meters longer than any used previously," says Structure Project Engineer/Designer Mario Bernardone. "Even at that size, the girders, because of the Bulb-T design, are lighter than other prefabricated designs and provide a high moment of inertia and optimum ratio of weight to load."

Eight 40 m-long pre-stressed girders presented their own problems, however. Fabricated by the ConFab California Corporation in Lathrop, about 10 km south and west of Stockton, the girders had to make a 120 km trip up State Route 88, a twisting conventional highway that carries traffic up and over the Sierra and to Lake Tahoe and Nevada.

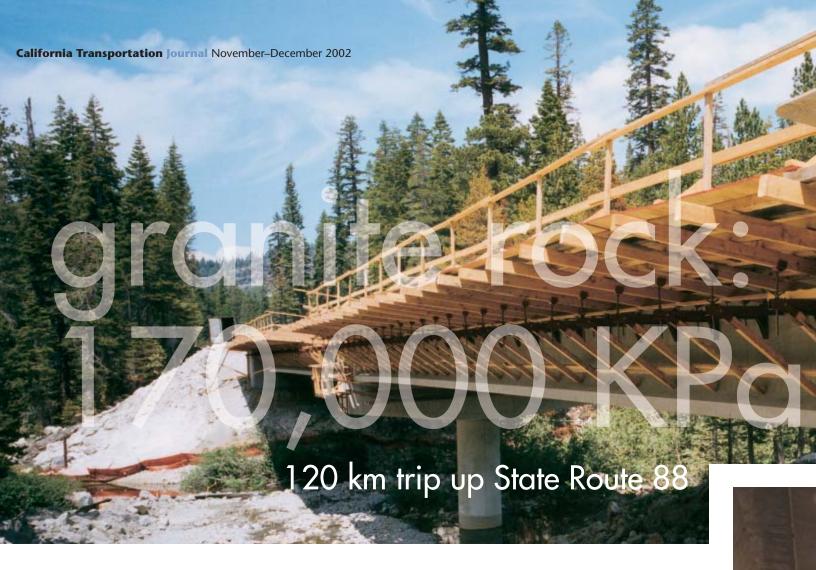
Reeve Trucking of Stockton was given the challenge of making the 12-hour trip in May 2002. Each girder was loaded by a gantry crane onto a single unit that consisted of a tractor at the front and a dolly at the rear, connected by the girder itself and cables for brakes and lights. The tractor ran on 18 wheels and the dolly on 16—a total of 34 tires—to spread the weight.

A convoy of four of these units, each carrying a single girder, left Lathrop at 10 am on May 5, accompanied by eight California Highway Patrol vehicles and eight pilot cars. The maximum speed of the convoy was about 40 km/h, but on Route 88's curves, the rigs had to slow to a crawl, often requiring hydraulic redirection of the rear dolly in order to negotiate the tight-radius curves.

Mother Nature was in no mood to cooperate; she dumped 75 mm of snow on the Sierra that May day. Project managers had to make a decision—make the perilous trip through the snow or go through the tortuous process of obtaining the needed permits all over again and risk a construction season. The trip went largely without incident other than a blown tire on one rig. The first rig arrived at Silver Lake at about 10 pm, then had to travel another eight km up the mountain to Kirkwood Meadows, where it was able to make a U-turn. A second convoy hauled the second set of girders the following day.

The bridge's proximity to the Silver Lake Dam—about five meters downstream at the closest and about 15 m at the farthest—presented other problems. The bridge center column and hammerhead were to be positioned about

Silver Fork's
Bulb-T girders,
almost 40 m
long, made the
trip up State
Route 88 in
12 hours.



20 m deep in granite rock that equaled any ever tested in hardness—more than 170 000 KPa. The abutments also required excavation of the granite. The only way to excavate in the hard granite was through blasting, a procedure that raised fears about the safety of the dam, which was already showing leakage through fissures in its concrete.

After doing a cost analysis of the potential savings, the contractor proposed blasting in the vicinity of the spillway. This saving was offered as a credit to the state for allowing the change.

The El Dorado Irrigation District required that a blasting plan be formulated and reviewed and approved by itself, the Federal Emergency Regulatory Commission and Occupational Safety and Health Administration. These agencies questioned whether existing technology could be used to perform the work safely, if it could be done without damaging critical structures and if a competent and experienced blaster were available.

The contractor was able to answer all of these in the affirmative, and a blasting plan was presented to the various agencies. Blasting began in August 2001; the

blasting proceeded successfully and the bridge column and abutments were completed by the end of the short construction season in November 2001.

"Regardless of the blast design," Abdelwahed says, "the skill and professionalism of the blaster were what determined whether or not it was safe. Caltrans and the contractor had that skill and the work went off without incident."

As with any project that affects a watercourse, Caltrans was under the close supervision of myriad resource agencies. These included the U.S. Fish and Wildlife Agency, U.S. Forest Service, National Marine Fisheries Agency, California Department of Fish and Game, U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency. But in addition, because the work was so close to the dam, Caltrans also was required to obtain permits from the U.S. Bureau of Dam Safety, the California Department of Water Resources and the El Dorado Irrigation District, agencies that do not normally supervise the department's work.

Caltrans developed a habitat loss mitigation plan and received the approval from the U.S. Forest Service, U.S.



Caltrans was under the close supervision of more than a dozen resource agencies in construction of the Silver Fork bridge.

"[The bridge] sits well in its surroundings, substantially increases safety on the highway and increases mobility across California.



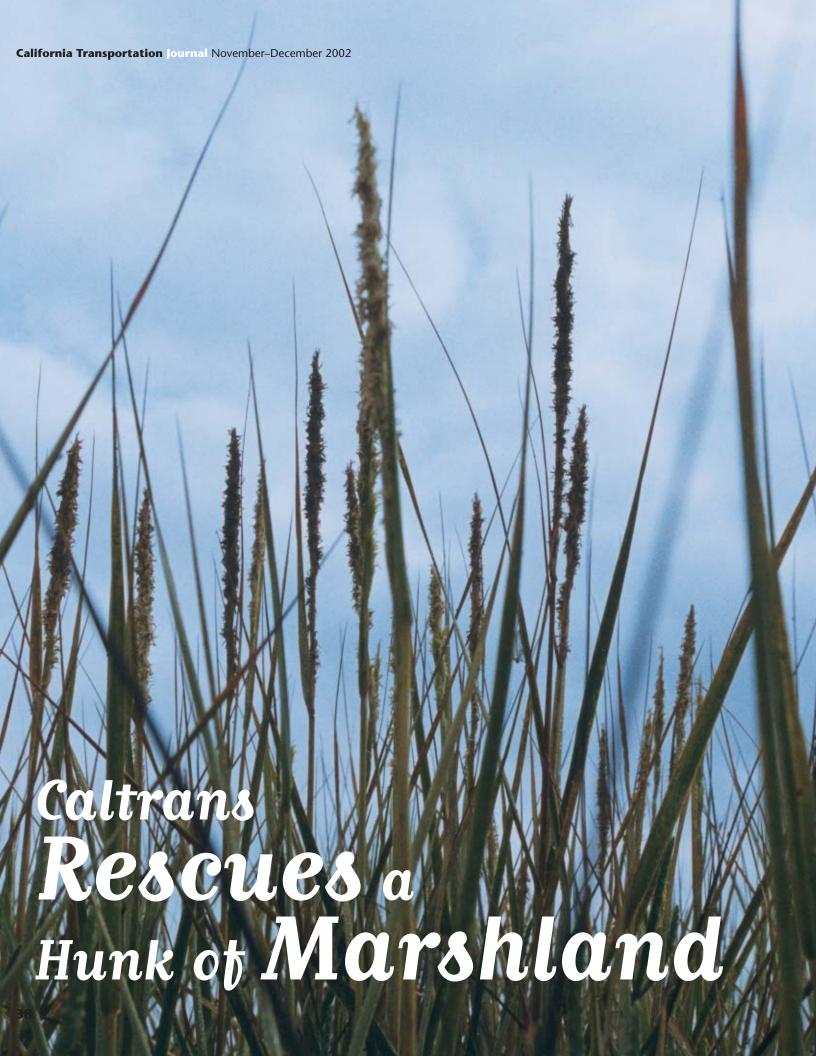
Fish and Wildlife Service and the California Department of Fish and Game. Encroachment into the stream, streambed and the lake's aquatic habitat were monitored carefully and controlled to ensure that no significant impacts to aquatic species occurred. Siltation was rigidly controlled throughout the job, and all debris and grindings from the concrete work on the bridge were captured and disposed of offsite.

A plan for avoidance of two historic properties through project design and designation as environmentally sensitive areas received concurrence from the State Historic Preservation Officer. Curve correction work that was part of the project had a major effect on scenic resources of the El Dorado National Forest; this was mitigated by creation of a paved vista point and replacement planting.

The project is also constructing a footpath between Silver Lake and the campgrounds downstream to allow pedestrians to cross beneath the highway without having to risk conflicts with traffic.

"We managed a great cooperative relationship with the permitting agencies," Abdelwahed says. "The result was a project that sits well in its surroundings, substantially increases safety on the highway and increases mobility across California. The skiers will love it."

—Gene Berthelsen



Stand out on the edge of the Tijuana Estuary in the city of Imperial Beach on a balmy August morning and you can watch a snowy egret perched on one foot—as immobile as a statue until a fingerling darts up a watercourse lined with waving cordgrass.

8nap. The egret has itself a tasty breakfast.

That grass, that water, that fish and that bird all arrived together at this fateful moment because of Caltrans.

This is a newly restored section of the Tijuana Estuary, .52 ha of valuable habitat that had been slated for residential construction until the department purchased it, removed more than 8700 m³ of partially contaminated fill material, then planted cordgrass, saltwort, jaumea, pickleweed, sea lavender and alkali heath—all furniture for the egret's living room.

And, according to the final report of the Tijuana Estuary Wetlands Restoration Project by Brown and Caldwell, an environmental monitoring firm, the egret's home is doing well enough that further monitoring would be counter-

productive by requiring biologists to trample in sensitive wetlands; it should be turned over to the U.S. Fish and Wildlife Agency.

The Tijuana Estuary restoration project, which Caltrans undertook in 1997 as part of a settlement agreement with the U.S. Environmental Protection Agency, Natural Resources Defense Council and San Diego BayKeeper, received approval from the EPA in the form of a letter earlier this year informing the department that it was no longer necessary to monitor the health of the property. It will now become a part of the nearby, much larger, Tijuana Slough National Wetlands Refuge, under the care of the U.S. Fish and Wildlife Agency.

The success story really started in the mid-1990s when the federal agency, along with the two groups dedicated to protection of California's coastal waters and their tribu-

taries, brought legal action, charging that Caltrans was not doing enough to stem runoff from its construction projects or its operating highways.

"The department could have pursued a long road of legal resistance," says District Counsel Jeff Joseph. "But then-District 11 Director Gary Gallegos chose to respond by agreeing with the plaintiffs to set up practices that would not only satisfy them, but result in a more benign Caltrans presence in its environment."

The district agreed to reduce the sedimentation from construction projects, perform additional filtration of runoff from operating highways, train

its entire maintenance and project development staff in best management practices to clean the runoff and undertake a program of public education to teach area citizens about their responsibility for clean water.

And Caltrans also pledged to find a place to restore wetlands in a part of California that had, over the past century, lost more than 90 percent of its wetland habitat. Caltrans found the piece of property it was looking for in the city of Imperial Beach. The vacant property, known as the Napolitano property, had been prepared for residential construction by landfilling what had been a natural wetland. When Caltrans found it, nothing continued

Cordgrass, saltwort, jaumea, pickleweed, sea lavender and alkali heath were all part of Caltrans' Tijuana Estuary Wetlands





was growing on it, and the nearby area had also been degraded because of siltation and a loss of continuity with the wetlands next to it.

Work began on the site in 1997 after a ceremony attended by representatives of the U.S. Environmental Protection Agency, the Natural Resources Defense Council, San Diego BayKeeper, City of Imperial Beach, California Coastal Conservancy and the County of San Diego, all of whom worked together to produce the restoration.

"This restoration is an example of the private sector and government working together to accomplish an important environmental goal," John Barth, Executive Director pro tem of San Diego BayKeeper, said at the time.

The project involved removing the fill that had been placed there, creating a narrow transition between the marsh and nearby Seacoast Drive, developing a broad, flat marsh plain to match the marsh elevations next to it

and excavating a small tidal creek to connect to one that flowed near the property.

Caltrans and its contractors started by performing soil and water analysis and characterization of subsurface soils. In addition, Caltrans assessed historical, pre-fill conditions to determine the topographical, hydrological and biological characteristics of the area before it was filled, then set goals that included allowing natural processes to occur, including soil development, nutrient cycling, plant succession, natural regeneration and wild-life movement

The project made use of low-maintenance, self-sustaining plants from the excavation area as part of the plant establishment.

Excavation started in December 1998 and was completed in January 1999. More than 8000 m³ of sand, silt and clay were removed. During the excavation, concrete rubble and

Caltrans'
half-hectare
Tijuana Estuary
Wetlands
Restoration
Project is so
completely
integrated
with natural
marsh that it
is impossible
to find its
boundaries.

petroleum contamination, which apparently resulted from a helicopter that crashed while taking off from nearby Imperial Beach Naval Air Station, were found and removed.

The elevation of the lower marsh was designed to allow sufficient tidal flooding for the restoration. But once the area had been excavated, the exposed substrate was found unsuitable for planting, and an additional .3 m of soil had to be removed.

That unearthed a layer of cobbles that was unsuitable for marsh plantings and required additional over-excavation of soil that had to be replaced by material composed of a 2:1 ratio of topsoil and dried kelp. The material was placed and compacted, and a tidal creek was excavated into it.

With the excavation complete and the soils prepared, planting began in February 1999 and completed within a few weeks. The final planting scheme, which placed a total of 7500 plantings in .5 ha site, the produced a low marsh zone dominated by cordgrass

and a higher zone dominated by pickleweed. The contractor, Diversified Landscape Company, was required to maintain all plants in a vigorous condition during installation and until final acceptance, and was responsible for pest control, monitoring, debris removal, erosion control, replanting, irrigation and weed control. Had the plants' condition not been healthy at the time of the conclusion of the monitoring period, Caltrans' acceptance of the work would have been postponed.

Caltrans and its contractors monitored the site for three years to determine whether the restoration functioned as expected. Success was based on the goals of the project and comparison to a nearby reference site. The monitoring

started immediately after planting was completed; it was conducted quarterly for the first year and semiannually after, for a total of three years.

Today, it is impossible to pick out where the Caltrans restoration stops and where the Tijuana Slough Wetlands take off. Watercourses thread the area and as long as the Skytrak 10054 lifter that's working on a large apartment house across the street shuts down, you can hear the rhythmic chirping of a toad.

On the right morning, you can watch the treasured lightfooted clapper rails foraging for food, a good indicator that the restoration has been successful. There's a good possibility that salt marsh bird's beak and the Belding's

> savannah sparrow, threatened two species, will show up one of these days. Pickleweed, cordgrass, saltwort, jaumea and alkali heath have multiplied and a lush, multilayered canopy now overlays what had barren been a construction lot.

The restoration of the estuary helps

accomplish several important regional goals. These include increasing the amount of valuable coastal saltmarsh on a local and regional scale; providing potential habitat for several threatened and endangered species including salt marsh bird's beak, light-footed clapper rail and Belding's savannah sparrow; providing habitat for non-listed, wetland-dependent species and providing additional buffer against urban encroachment.

But Helene Bell, the District 11 erosion control specialist, puts all of this into perspective as she surveys the grasses, the wildlife and the hazy skies.

"Any morning out here," she says, "is better than the best morning working at your desk." —Gene Berthelsen

Helene Bell shows off the early morning pleasures of the Tijuana Estuary to a visitor.

Seven Cars for Composition Cars for Car

As seven fuel cell vehicles head out of Monterey's Custom House Plaza, the loudest sound you hear is that of the California Highway Patrol's motorcycle escort.



More important, the only greenhouse gases being emitted into Monterey's faultless blue sky on this sunshiny morning are from those self-same motorcycles.

This occasion, a down-the-coast rally from Monterey to Santa Barbara last September 4, is an opportunity for the California Fuel Cell Partnership to show off a propulsion technology that it believes will power California's vehicles through the next century and beyond.

The promise of fuel cell technology, according to Joe Irvin of the partnership, is that what goes in the front—hydrogen—would lessen dependence on foreign oil, and what comes out the back—water vapor—would release the automobile industry from its bondage to the federal Environmental Protection Agency.

The vehicles in today's rally, built by Honda, Nissan, Toyota, Hyundai, Ford, General Motors and DaimlerChrysler, combine hydrogen and oxygen to provide two things: water vapor, the only emission, and an electrical charge, which powers an electric motor that pushes the car down the road.

Proponents of fuel cells are confident that the technology is sufficient to power a full range of vehicles and even trucks and buses. Today's prototypes range from a Ford Focus to a Toyota Highlander or a Hyundai Santa Fe. In general, they will travel

about 200 km on the amount of hydrogen they can store onboard and can reach speeds of about 100–120 km per hour.

The fuel cell powered Focus, at least, shows that it is capable of burning rubber as one of the test drivers floors the accelerator pedal during a hands-on demonstration drive.

Mostly, in fact, driving one of these vehicles is an identical experience to driving a similarly configured gasoline powered vehicle. And while any conversation about

hydrogen power inevitably gets around to the explosion of the Hindenburg, the fuel in the form used by these vehicles is considerably safer than gasoline.

Together, the automakers expect to place up to 60 fuel cell passenger cars and buses on California's roads by the end of 2003; all of the manufacturers expect to have cars with the performance characteristics of today's gasoline-powered cars on the market by 2010 at a price that is comparable to that of today's vehicles. (The City of Los Angeles recently announced its intent to lease five fuel cell cars for its fleet.)

But for that to happen, development of the vehicles must go in lockstep with the development of a fueling infrastructure. Most fuel cells use hydrogen. Pressurized hydrogen and oxygen are fed into opposite sides of the fuel cell and pass through a labyrinth of channels coated

with platinum, which reacts with the hydrogen to strip its electrons out. The hydrogen's positively charged particles, or protons, pass through an external circuit, producing electricity and heat. Oxygen from the air enters the cathode and combines with the electrons and protons to produce water. The byproducts of the reaction are water vapor and heat.

Fuel cells, over the past decade or so, have followed the path of the computer industry in terms of miniaturization, led by the Ballard Power Systems Inc., of Burnaby, B.C., Canada, whose fuel proton exchange membrane technology is used in five of the eight vehicles. "In 1990, the

propulsion system would have taken up the entire car," Irvin says. "Today, it requires much less space and we expect that evolution toward a smaller power plant will continue. We have been seeing a new generation of fuel cell about every two years."

"The hydrogen can reach a car in two ways," Irvin says. "It can arrive in gasoline, ethanol or methanol and be extracted, or reformed, on the vehicle. Or it can fuel the vehicle directly at a hydrogen fueling station."

Honda, Nissan,
Toyota,
Hyundai,
Ford, General
Motors and
DaimlerChrysler
recently showed
off their fuel
technology
in a coastal
rally between
Monterey and
Santa Barbara.

continued

In either case, from raw material to usage in the vehicle, the hydrogen provides at least a 25 percent increase in efficiency when compared to gasoline used in an internal combustion engine.

There are no commercial outlets capable of selling hydrogen directly to California motorists today.

Recognizing this, seven auto manufacturers, three energy companies, two fuel cell technology companies and several government agencies—the California Fuel Cell Partnership—have come together to try to iron out the challenges of bringing the technology on line together with a fueling infrastructure.

California has been chosen because its stringent air quality requirements make the state a laboratory for any number of technological advances in cleaner vehicle systems and clean fuel alternatives.

The partnership has installed a hydrogen fueling station at its West Sacramento headquarters, as well as a methanol station. It hopes in this way to identify potential problems along the path to commercialization. And it operates the colorfully marked vehicles around California's streets and roads in hands-on exhibits, vehicle demonstrations—school presentations and events like the coastal rally in September, to raise awareness and enhance public opinion about the vehicles.

Is fuel cell technology the propulsion system of the future?

Chris Grundler, deputy director of the U.S. Environmental Protection Agency Office of Transportation and Air Quality, sees it as one of several long-term initiatives that include cleaner diesels, battery-powered vehicles and the hybrid internal combustion electric vehicles that are beginning to appear on the market.

"While the fuel cells have a long-term potential, we don't want to lose sight of the short term," he says. "As a matter of public policy, we would be wise to follow numerous



paths toward energy sufficiency. We are in a difficult situation right now because so much of America's energy is produced from petroleum."

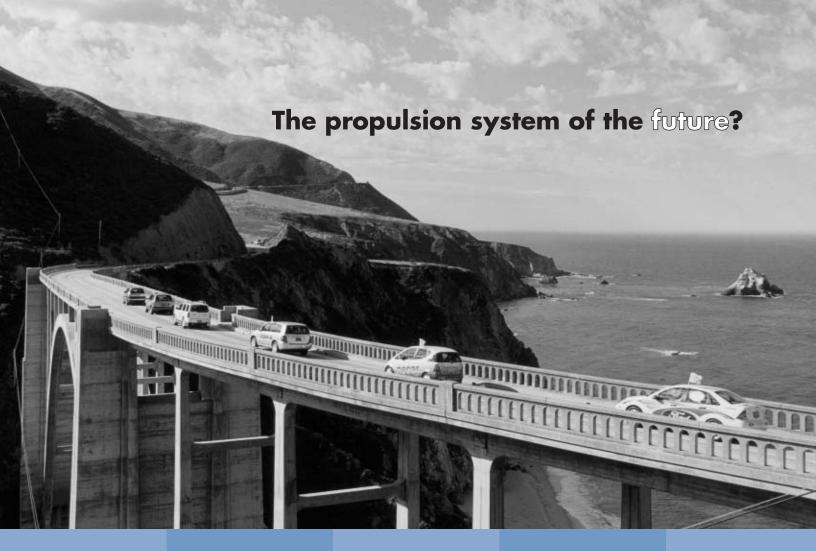
Grundler believes that fleet use of the fuel cells is most likely in the shorter term, simply because the widespread fuel infrastructure needed to put them into general use

is not there and isn't likely to be for awhile. "There has been no decision, for one thing, about how the hydrogen would be delivered to the vehicle. But hydrogen can be shipped to a fleet-based site, and the use would likely expand from that."

Grundler also sees a future in stationary uses of fuel cells to power generators and other distributed power systems.

Lauren Segal, general manager for hydrogen development at British Petroleum, says that her company now has six hydrogen fueling stations in Europe and expects to expand into Asia next year. "We're looking





at United States markets," she says. Her company has become a member of the California Fuel Cell Partnership for the purpose of working out ways that the fuel can be made available if and when the vehicles become more widespread. Chevron/Texaco, Shell Hydrogen, and Exxon/Mobil are also members of the partnership.

Widespread use of hydrogen—or indeed any of the so-called alternative fuels—poses a problem for transportation agencies like Caltrans.

Taxation of petroleum fuels is a very efficient process; widespread adoption of alternative fuels, including hydrogen, would require development of some means of taxation other than at the pump unless a fuel like hydrogen could be metered and taxed the way gasoline is.

A July 1997 report by Caltrans estimated that the revenue loss to surface transportation financing as a result of high performance conventional and alternative fuels in 2005 would be as high as \$650 million. The federal government estimates that growing alternative fuel use has resulted

in a revenue loss to the currently proposed Federal Transportation Act of \$10 billion nationwide.

"It's one of the issues we'll have to address as we move toward greater use of the vehicles," says Joe Irvin. "But we can't lose sight of the attractive environmental benefits they provide, either." In the meantime, the partnership's

brightly painted vehicles are becoming familiar sights around Sacramento and elsewhere in California. And the major automobile manufacturers are continuing to experiment with vehicles with smaller, more powerful, more efficient power plants.

Asked if the partnership could supply Caltrans with a

fuel cell powered dump truck some day, Irvin says, "Yeah, I think we could probably do that." —Gene Berthelsen

Seven fuel cell powered vehicles slip across the Bixby Creek Bridge during the recent California Fuel Cell Partnership Rally.



District 4's Jim Newman recently won a Director's Innovation Award for his imaginative use of goats to clean up Yerba Buena Island's landscape.

Goats

When one thinks innovation at Caltrans, the often-complex science of highway design and construction comes to mind: new concrete additives, advanced programming for highway metering or more efficient LED lighting for signals.

But sometimes innovation comes from recognizing the virtues of centuries-old technology. It was such innovation that recently won Jim Newman, Toll Bridge Maintenance and Paint Region Chief in District 4, a Director's Innovation Award.

District 4 crews, trying to line up a detour structure for the new \$2.6 billion east span replacement of the San Francisco-Oakland Bay Bridge, were faced with the perils of poison oak and blackberry bushes on Yerba Buena Island.

Laser-equipped and satellite-positioned robotic surveying gear was of no avail unless a point could be established amid the steep hillsides' high, unfriendly, difficult-to-remove brush. Senior Transportation Surveyor Brad Shumate called on Newman for help.

When Newman looked at the gnarly weeds and poison oak he thought "goat food!" and innovated an elegant solution. "Goats have a reputation for eating anything from tin cans to Easter hats," Newman says. "They are voracious consumers of just about any weed that you can imagine, including the thistles and berries and poison oak populating the area of the new bridge."

Contacting Ecosystem Concepts, of Dixon, Newman discovered that the goats would eat the noxious plants at a rate of 5 percent of their body weight per day. The going rate for goats is .25 cents per hour per goat, which



worked out to be \$8100 for the job, a savings of about \$110 000 over conventional clearing methods.

Within a few days, Newman had a couple hundred goats munching away with three sheep dogs nipping at their heels. "And," he says, "at no added cost, they fertilized the land while they worked!"

Within two weeks, the surveyors and their high-tech tools could be seen working on the nicely cleared hillsides.

Yerba Buena—the current name of the island that anchors the bridge, and until 1847 the name for San Francisco—means "good herb" in Spanish, and denotes a sweet-scented creeping plant that is common in the area. The original name of the island was Alcatraz, but somebody misread a map while rushing to the gold fields so a nearby island took that name. Until 1931, Yerba Buena was called "Goat Island" because of the hundreds of goats that roamed its steep hills.

The land was cleared, the goats dined well and Caltrans now knows within 1.5 mm where its construction detour will be placed. —*Greq Bayol, District 4 Public Affairs*



Caltrans Honors its Partners

The Division of Construction recently recognized six transportation improvement projects at the 2001 Excellence in Partnering Awards at the State Capitol in Sacramento. The awards honor project stakeholders for their partnering efforts on contracts.

Sixty department and industry employees and external stakeholders were recognized for their work on the projects. This year's two Gold Award winners also received national recognition with the National Associated General Contractors Marvin M. Black Excellence in Partnering Award.

The State Route 86 Expressway Project in Riverside County and the San Mateo-Hayward Bridge East Approach Highway 92 Project in Alameda County received gold awards. Silvers were awarded for the U.S. 50 Widening Project at Folsom Boulevard in Sacramento County and the Coronado Bridge Seismic Retrofit Project in San Diego County. Bronze awards went to the Interstate 5 freeway rehabilitation project in San Diego County, the Interstate 5 North widening project, Segment A-3, in Orange County.

Robert Pieplow, Chief of the Division of Construction, says partnering has improved communication between the

state and its contractors and helped to resolve conflicts on the job. "It has also improved the quality of projects by promoting trust and teamwork."

"Partnering brings all parties involved in a contract together to make a commitment at the start to achieve safer projects, increased job satisfaction and reduced traffic congestion," says Brent Felker, Chief Engineer and a supporter of partnering from the beginning. "Accomplishing these goals supports efforts to achieve the best safety record in the nation. And this year, it delivered record levels of transportation improvements and reduced roadwork-related delays."

Caltrans, along with representatives of the construction industry, has produced the "Field Guide to Partnering," conducted joint training and implemented a performance measurement system.

The awards ceremony provides the opportunity for Caltrans to thank those who have worked hard to make the program work.

"Those honored at the ceremony have demonstrated that a team effort can produce positive results," Felker says. "The projects recognized are models for how to deliver better transportation projects earlier and at reduced costs. —Elizabeth A. Dooher





Caltrans
recently honored
about 60
departmental
and construction
industry
employees for
their partnering
efforts.



Value Wins in District 8

In a recent ceremony, Deputy Director Tony Harris honored David Thomas, Design; Timothy Sharp, Traffic Design; Jeff Sims, Structures; Paula Curtis, Construction; Theresa Sasis, Project Manager and Raghuram Radhakrishnan, Project Engineer, all of District 8, with the 2001 Outstanding Value Engineering Study Award.

Interstate 215 in San Bernardino had long been a source of debate concerning social and economic balance in the city, located in the heart of the Inland Empire. In 1998 Caltrans included a project to widen the freeway in the

State Transportation Improvement Program.



Ultimately, the 9.6 km undertaking would consist of a 10-lane facility with high occupancy vehicle lanes for a portion of the project, concluding with an eightlane segment in the lower volume area. Widening to accommodate the carpool lanes and modifying interchanges for equal access to the city were necessary to accomplish the identified configuration.

Because the proposed project was bounded by the Burlington Northern Santa Fe Railway tracks to the west, the original design entailed easterly access, limiting availability for the west side of the city. West-end residents and business people asked for a change.

To deliver a quality project, District 8, the San Bernardino Associated Governments and the City of San Bernardino formed a value analysis team that identified three alternatives: a collector/distributor road system, a modified collector/distributor road system and a braided ramp/split diamond system.

Subcommittees were formed to develop geometrics and costs and to consider traffic issues, cost effectiveness, freeway access, corridor consistency, right-of-way impacts and manageability by motorists. The teams performed traffic analysis and constructability/staging studies as assessment tools.

Ultimately, after evaluating all the information and taking public input into consideration, the team reached a consensus on a braided ramp/split diamond system. Besides a \$9.5 million cost savings and significant value to taxpayers, the selected alternative affords motorists congestion relief, a more conventional design for ease of use and reduced right-of-way impacts.

"The process used by the VA team illustrates Caltrans' desire to produce the best product possible for its customers," says Anne Mayer, District 8 Director. "The work of the I-215 team will allow Caltrans to deliver this project quickly while improving quality, resolving controversy, improving safety, increasing benefit and decreasing cost."

"Caltrans performs dozens of value analysis studies annually, but only a select few compete for 'Most Outstanding," Thomas says. "It is satisfying to be a part of a team that produces a quality product. We strive for this level of service every day." —Gene Berthelsen

District 8 recently took top Value Engineering Study Awards for its Route 215 widening project.





Knitting up Afghanistan

In the aftermath of the terrorist attacks of September 11 last year, American flags and other expressions of patriotism burst out across the land like flowers in spring.

For most of us, that was the extent of the effort.

But for one engineering technician in District 11, that wasn't enough.

Hamed Dost, himself an immigrant from Afghanistan and fluent in the Pashtu and Dari languages spoken in that country, chose to show his support for his adopted country by going through training, medical evaluations and background checks in Washington D.C. in order to work as an interpreter in Afghanistan.

"I was attached to the 513th Army Brigade," Dost says. "I was assigned to the Kandahar Air Base for one month, and then for the duration of my service I was assigned to the Bagram Air Base."

Dost acted as an interpreter while his brigade built emergency medical facilities, reconstructed schools, drilled wells for drinking water and provided medical treatment to civilians.

"Words can't express the joy, hope and thanksgiving of the families who were recipients of American generosity," Dost says. "More than 2.5 million boys and girls have returned to school. The University of Kabul and other colleges are now open and women are taking part in the educational system. Many women, working as teachers, nurses, doctors and in other government jobs, are free to choose to whether or not to wear the burga."

While Dost was in Afghanistan, District 11 collected \$1468.82 for Afghan children and their families. "Many children had lost all family members and their small bodies were blown apart in land mines and other types of explosions," he says. "I gave a large portion of the donations to these children who would have died without emergency surgery and after-care medication."

Dost also purchased pens, pencils, notebooks, crayons and coloring books for a girls' school near the base. "You had to be there to see the excitement in the little girls' faces as they raised their hands to request and receive a pencil in their favorite color," he says.

Dost had anticipated that he would not return to the United States until November, but due to a lifethreatening medical condition and the grave illness of his mother, he had to return earlier than expected.

"I am privileged to have served with U.S. and British service men and women who worked and risked death selflessly," he says. "Their courage, professionalism and kindness inspired and encouraged me every day. We are improving the quality of life for more than 24 million people of Afghanistan; I am proud to be an American."

—Gene Berthelsen

Hamed Dost recently showed his allegiance to his adopted country by serving as an interpreter in Afghanistan.





Caltrans
competitors
agree that
operating
snow removal
equipment at
the National
Snow Roadeo
is actually
more rigorous
than everyday
plowing of the
roads.

Top Guns

A pair of Caltrans maintenance workers recently rode to the winner's circle in the 22nd annual National Snow Roadeo in Denver.

Dale Haun from District 7 and Brent Rogers from District 3 teamed up to claim the top spot in the tandem axle plow truck competition. Haun and Rogers, along with Scott Crowe and Gary Ragan from District 2, led an outstanding overall performance in the competition, which included 243 competitors from 36 states and Canada.

"Competition was fierce. The participants were highly skilled and there to win," says John Cottier, Chief Office of Maintenance Equipment and Emergency Operations and unofficial team coach. "Dale, Brent, Scott and Gary did a great job. They are shining examples of the skilled workers who make sure our mountain roads are safe and passable in the winter."



Dale Haun and Brent Rogers recently were named "top guns" at the National Snow

Haun is an equipment operator working out of the Chilao Maintenance Station, responsible for the Angeles Crest Highway north of Los Angeles. Rogers is based at Kingvale along Interstate 80 just west of the Donner Summit.

"You don't really think of snow and L.A. together but we get our share," says Haun, a 30-year veteran of the department with 19 years working the Angeles Crest.

Rogers, who has been in Caltrans Maintenance for nearly six years, is an equipment operator at Kingvale where he hones his plowing skills as a member of the crew responsible for keeping Interstate 80 passable over the Donner Summit.



competition



"Competing in the roadeo is fun but harder than plowing snow from a highway. On the highway, you do not have the time requirement. At the roadeo, you have to complete the course in six minutes," says Rogers, whose father, Terry, is Statewide Equipment Coordinator.

Neither Haun nor Rogers is a stranger to the national roadeo. Rogers competed twice before and Haun represented Caltrans at last year's nationals.

The road to the winner's circle is a long one, with little room for error.

Haun, Rogers, Crowe and Ragan had to survive regional and statewide competition. The top four finishers in the state competition

competition. The top four finishers in the state competition comprised the Caltrans team at the national roadeo.

At the nationals, teams must successfully complete a written test, a diagnostic section to identify four equipment problems in four minutes and the road test. Scores from all three elements are then totaled to determine a champion.

As the top two finishers in the state competition, Rogers and Haun were paired with one another. Crowe and Ragan made up the second pair. Prior to departing for Colorado, the two teams had a week of practice at the Maintenance Equipment Training Academy facility in Sacramento.



Haun had an inkling that he and his partner would do well. "The night before, after we had placed second in the single axle, I was joking around that we would take first in the tandem. Of course, we took some teasing from the other competitors—especially from Colorado," he says.

As for trying again next year, Rogers is considering "retiring as a champion and letting someone else get the experience of going to the nationals." Haun, however, has set his sights on another try for the brass ring or, more accurately, the brass belt buckle that is awarded to the winners. —*Jim Drago*





Division of
Facilities'
Deanna
Beland, an Air
Force Reserve
Technical
Sergeant helps
to keep the
940th in the air.

DBFAMS in Peace and War

The balance between military commitments and employer requirements is often difficult to maintain. Many employers, fearing loss of production and impact to the organization, are reluctant to release a reservist to military duty.

Since the attacks of September 11, 2001, the military's role has expanded to meet worldwide challenges and protect national security. Reservists are relied upon to support, strengthen and augment active-duty military forces.

Today the Division of Facilities, Asset Management and Security is providing vital support to the United States Air Force Reserve 940th Air Refueling Wing through the contributions of Deanna Beland. This Associate Construction Analyst is an Air Force Reserve Technical Sergeant with the wing's Aerospace Medical Squadron.

The wing's mission is to provide aerial refueling and airlift capacity worldwide to meet the nation's objectives; the medical squadron is an essential component, providing trained medical personnel for physical examinations, medical readiness consultations and immunizations to flight crews to ensure their combat readiness.

As a Caltrans employee, Beland is at work on the new District 11 office building. She tries to keep the Headquarters District 11 project manager and the Departments of General Services and Finance all on the same page. The design-bid-build project is currently in the working-drawings phase, with initial construction proposed for fall of 2003.

When asked how her two careers relate to one another, Beland says, "Although my Caltrans and Air Force duties are very different, the organizational structures and group dynamics are similar. In the Air Force I manage programs and at Caltrans I coordinate projects; I find teamworking skills very important in both."





Throughout Beland's employment and particularly during the weeks following 9/11, Caltrans managers and coworkers have supported her military duties. "I could see the concern in their faces as I prepared for possible activation. It meant a lot to me personally to know how much they cared," she says.

With the 940th, Beland works on substance abuse prevention, awareness education and testing. She also conducts randomized drug testing. In addition, during a typical reserve weekend, she participates in training assignments such as nuclear, biological and chemical warfare, field training, M-16 weapons qualification and medical sustainment. Recently, she completed "moulage" training (the art of injury simulation) and will be creating "victims" for a mass casualty exercise scheduled in February 2003. —Gene Berthelsen



Show Dogs Keep Her on the Go

Christine Cox-Kovacevich, a senior environmental planner in District 6, takes the phrase "going to the dogs" seriously. In reality, her six Labrador retrievers take her to dog shows and exhibitions up and down the state as they compete in American Kennel Club conformation competitions, hunt tests and bird dog challenges.

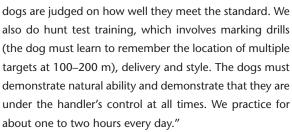
The dogs' names give an indication of their demeanor and personalities: "Cody," a 2½-year-old yellow Lab, "Skye," a 2-year-old black Lab, "Bailey," a 2-year-old black Lab, "Angel," a 1-year-old yellow Lab, "Cheyenne Destiny," a 1-year-old chocolate-colored Lab and "Whiskey," a 7-month-old yellow Lab.

"I have been involved with dogs my whole life, but just got serious with competing them about 3 years ago. My husband, Scott, and I are avid hunters and knew when we got married that one of our first purchases would be a bird dog," explained Cox-Kovacevich, who has worked for Caltrans since 1997.

"Our first dog, Cody, was a wedding gift to me from my husband. We quickly had to add Skye for my husband," she says. "Now we have our own kennel—Four K's Labradors. Our dogs compete in AKC hunt tests, conformation shows and National Bird Dog Challenge Association events. We hope to add obedience and agility trials next year."

Training takes different forms. "We started with owner-handler training with a professional gun dog trainer. You work your dogs once a week for about an hour per dog. The trainer then gives you assignments to work on at home. This is about four to six months of training," she says. "After going through this with a couple of dogs, we now do this ourselves."

For the dogs, training begins simply. "We start with basic obedience, then go on to the area in which the dog shows the greatest aptitude," Cox-Kovacevich says. "For conformation, or beauty contests, we demonstrate obedience in the ring, and the dogs must stand for a thorough inspection. The



The training is paying off. "Cody has won an NBDCA amateur challenge and is currently the top amateur dog in California. Angel has won three third place wins and one fourth place win in the 3–6 month puppy class," she says.

In the coming year, Cox-Kovacevich expects to go to about 40 different competitions. Her ultimate goal at these events: "To spend time with our dogs and to meet other people who love dogs as much as we do."

"Our dogs are a big part of our family," says Cox-Kovacevich, who took some time away from training and competition a year ago to give birth to a daughter, Brenna. "The first word my daughter tried to say wasn't 'Mommy' or 'Daddy,' but 'Angel.' That's her doggie."

—Jane Sellers, District 6 Research Writer



District 6's
Christine CoxKovacevich and
husband Scott
and "family."



Ogle is Leukemia Society's **2002** Man of the Year

Terry Ogle is the man—Man of the Year, to be more precise.

Ogle, a project manager in District 6 in Fresno, was awarded the title "2002 Man of the Year" from the Central Valley branch of the Leukemia and Lymphoma Society. He received the honor for raising the most money—more than \$4000—through several creative fundraising efforts for the society over an eight-week period in May and June. Among other things, he ate an earthworm, had his leg waxed and his hair shaved off, all for donations to the cause.

He initially set his goal at \$2500. But Caltrans friends and co-workers rallied to his support and pushed his fundraising efforts past that target. At one fundraiser, Ogle himself was the target—literally. Caltrans employees and their children gave money to throw water balloons at

Ogle. The balloons were topped with shaving cream.

District 6's Terry Ogle will endure practically any humiliation to raise money for the National Leukemia and Lymphoma Society.



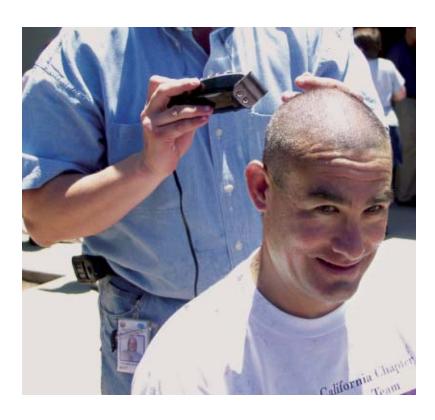


At a Caltrans District 6 Kids' Day event in June, Caltrans employees readily gave donations to watch Ogle take several physical and mental challenges. First went his head of hair. "Unbelievable," says Ogle's supervisor, Central Region Program Project Management Division Chief Ihab Abouelfittouh, who had the delicate task of shaving Ogle's head that day. Then came the worm. The lunchtime event

> took on added meaning after Ogle ate a real earthworm ("a Canadian nightcrawler," he said). And, finally, another hairy challenge—the leg waxing, which took about 10 minutes for a 75 mm by 200 mm patch of hair on his right leg.

> At the end of the eight weeks, Ogle far surpassed his goal, bringing in \$4130. He was awarded his "title" at a June award ceremony where he received a plaque, crystal winner's cup and a gift basket—pretty impressive for someone who had been involved with the cause only for a few months.





Newly-shorn Terry Ogle, "Man of the Year."

Ogle first got involved after seeing a flyer for the Leukemia and Lymphoma Society's Team in Training program, which is a fundraiser that involves an annual marathon. He took the flyer. "I wanted to compete in a marathon or triathalon," he says. That was his first thought, but then fellow District 6 Project Manager Jim Bane, whose wife works with the local chapter of the Leukemia and Lymphoma Society, came to him and said he wanted to nominate Ogle for the "Man of the Year" Award, presented to the male volunteer who raised the most money for the cause. That got Ogle working fast. "I've come to realize there are things I can do to help—with the talents that have been given to me," he says.

The experience has proven to be one revelation after another for Ogle, who has worked at Caltrans for 15 years. "I was amazed, after sending out a mass e-mail, at the response. In doing this, it's amazing to hear how many people this disease affects. They each had a story to tell. To hear their stories was educational and interesting to me."

Ogle plans to stay involved. "I plan on defending my title next year and participating in the Team in Training," he says. "When you attend a funeral service for someone who died from the disease, it puts it all back into perspective—to find a cure." —Jane Sellers, District 6 Research Writer



Caltrans Planner Brings Food and More to Fresno Homeless

In his off hours, Senior Environmental Planner Bryan Apper is one very busy man. You could almost say he has a second job or maybe, more appropriately, a second calling.

Apper, who manages the Preliminary Environmental Analysis Branch in the Central Region Environmental Office in Fresno, and his wife Liza, who provides counseling services to the homeless and is a graduate student studying pastoral care and counseling, started a St. Benedict Catholic Worker program in Fresno more than five years ago. The Catholic Worker movement began in New York in 1933, Apper says, and its philosophy stresses the dignity of each person. There are more than 150 Catholic Worker houses throughout the world, he notes. Apper's program provides meals, toiletry items, overthe-counter medicine, clothing, blankets and more to downtown Fresno's poor and homeless.

"We set up serving tables at the corner of Fresno and M streets in front of the county jail and serve from restaurant-style containers that keep the food and drinks hot or cold. We originally chose that location to serve families and friends visiting inmates and inmates just released. News spread and we quickly had a line of homeless waiting for us each night," Apper says, adding that he and his volunteers also occasionally deliver sack lunches to locations around Fresno where the homeless gather.

The dinners downtown are served on Tuesdays and Thursdays. "Over 65 000 dinners have been prepared, transported and served."

Apper's commitment has gone beyond food and supplies.

"Many of our homeless clients have stayed with us for a night or two to get off the street. A number of long-term guests in our home have established more stable lifestyles and moved into permanent housing," he says. "We focus



Senior Environmental Planner Bryan Apper is busy on and off work—to help out the homeless in Fresno.

on chronically homeless women, since most other groups only help battered women or women with children. We serve about 15 to 20 chronically homeless women in the downtown Fresno area. We also serve the downtown poor, about 150 homeless men, and we see lots of families toward the end of each month."

The worldly goods his program provides are appreciated, but Apper said his mission goes much deeper.

"Catholic Workers are known for their compassionate relationships with people discarded by society. We differ from larger institutional organizations because of our focus on relationships with people," he says.

"It is not about the food. People who gather at Fresno and M streets do so because of the coffeehouse atmosphere created. People care about each other and break bread together."

For Apper and his wife, touching the lives of those less fortunate "is one way we serve our Catholic-Christian faith," he says.

In his work at Caltrans, Apper focuses on determining the effects a highway construction project might have on the people, economy and natural environment. On his second job, Apper zeroes in on the people, specifically the homeless of downtown Fresno, giving them the dignity and compassion that their environment sometimes lacks.

—Jane Sellers, District 6 Research Writer

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Editoria Notebook

In the years we've been banging around Caltrans, we have seen about a dozen major buzzwords come and go—often hilarious, sometimes grim, but rarely employed to any appreciable effect. In parlous times, when beached up among the managerial disciplines, we've even been associated with some of them.

"Program Budgeting," "Management Information Systems," "Management by Objectives," "Teamwork," "Re-engineering," have all come and gone, washing over the body Caltrans like waves crashing in from an ocean of managerial gobbledygook, roiling the sand but leaving the rocky organizational crags unmolested.

With nonchalance as its champions chart out the way, for sure this time, to "institutionalize" it. They suffer through the "rollout," endure the subsequent implementation with eyes oriented heavenward and a snicker behind the hand, provide diminishing lip-service as enthusiasm wanes, and then breathe a sigh of relief at the onset of the next budget cycle as the buzzword fades on the far horizon like a superannuated comet, secure in the knowledge that another one, following the trajectory of death and taxes, will be along soon.

Imagine, then, what seems to be going on with "Context Sensitive Solutions"—as bureaucratic-sounding a buzzword as we've had around here in a long, long time.



It seems to be taking.

In the past couple months, we have found the phrase favorably turning up again and again on the lips of working-level design, permit and traffic staff, planners, landscape architects, maintenance workers—even a resident engineer (an RE)!! Wo.

What's going on here?

Maybe, just maybe, it's the right thing to do.

West Oakland is a case in point (Mandela Parkway, p. 2–7). The old Cypress structure was more or less thrust onto that city without consultation with the community and it sat there, a mammoth irritant, until, as the Reverend Ralph Williams of Oakland said in a public hearing, "God brought it down."

District 4, when it designed the new Interstate 880 and now, landscape architects Lyle Oehler and Bryan Walker, have produced something that will grace that city, and you can already see evidence that it is enhancing the community and the lives of those who live there. There's a new life in West Oakland, and you can thank the principles of context sensitive solutions for it.

That's not a buzzword. That's a genuine buzz.

